THE

JOURNAL OF GAS LIGHTING.

PUBLISHED MONTHLY.

No. 59, Vol. III.] LONDON, DECEMBER 10, 1853. [Price 1s. 6d., In America 45 Cents.

TO GAS COMPANIES.

BOGHEAD CANNEL COAL.—This is the most highly bituminous coal known, and, therefore, peculiarly adapted for mixing with inferior coals in the Manufacture of Gas, for which purpose it is exclusively used. One ton of it yields 13,500 cubic feet of gas, of the specific gravity of ·775; and a burner consuming at the rate of 1 cubic foot per hour, gives a light equal to 8¼ spermaceti candles, each consuming 120 grains of sperm per hour. The light yielded by 1 ton of this coal is equal to that from 1990 lbs. of sperm candles; whereas that from the same quantity of Newcastle Caking Coal is only equal to 420 lbs.; and that from the best Wigan Cannel Coal is only 750lbs. of sperm candles. It can be shipped at any of the ports in the Frith of Forth or the Clyde.

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And 87, Union-street, GLASGOW, and
THOMPSON and CO.,
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Shippers of Cannel and other Gas Coals, Fire-bricks, Retorts, &c.

WANTED, in a large Gas Establishment, a SUB-ENGINEER of energy and ability. He must be well acquainted with the most modern and approved modes of manufacturing gas, the details of construction and repair, and the routine management of Gas Works on a large scale. Salary (to commence), £150 per annum, with the advantages of house, gas, and coal, free.

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LAP-WELDED FLUES FOR BOILERS.
GALVANIZED TUBES, SHEET-IRON, &c.

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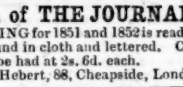

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which preserve water or other liquids conveyed by them in a perfectly limpid condition; whilst the Enamel itself is as pure as the finest Porcelain, possessing the rare recommendation of being entirely free from any noxious ingredient in its composition.

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One Cast-iron Tank, 40 feet diameter, with Gasholder containing about 20,000 cubic feet.
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Bromine, 3s. per ounce.

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It is important to gas companies to know the pressure at various parts of their districts during the successive hours of the night, for the better regulation of their initial pressure at the Works. This compact apparatus, capable of being placed in a space of less than one foot cube, is intended to supply this information. Price £7. 10s.

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Further particulars may be had on application at the Works, GREAT YARMOUTH.

W. H. WILLIS, Secretary.

Gas Works, GREAT YARMOUTH, Nov. 16, 1853.

To GAS & WATER COMPANIES, CONTRACTORS, AND SHIPPERS.

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TUBING, with Connections of all sorts; RETORTS of Iron and Clay; FIRE BRICKS and FIRE CLAY.

All kept in stock, and sold at wholesale prices.

Gasometers, Tanks, Purifiers, &c., fitted up complete, in London, the country, or any part abroad.

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His patent system of purifying gas on the premises of the consumer is rapidly extending its beneficial, sanitary, and economic results. The following important places are lighted by Leslie's Patents:—

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GAS VALVES have been adopted by numerous Gas Companies in England and abroad, and their advantages and great security fully proved. Very large numbers are in use. Prices from 11s. to 14s. per inch diameter.

Their PATENT GAS EXHAUSTERS have the important advantages of a continuous uniform suction or exhaust, of having no valves whatever, of acting with an exceedingly easy motion and very small friction, and hence of taking less power than any others.

They may be seen at work at a large gas works, on applying to BRYAN DONKIN and Co., Engineers, near Grange-road, BERMONDSEY.

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improvements he has made in the Wet Meter, and which he has secured by her Majesty's Royal Letters Patent, the accuracy of their registry is rendered certain by the introduction of the adjusting slide and hydraulic, whereby a Perfect Water Level is readily obtained, and the Hydraulic precludes the possibility of abstracting water from the meter by increased pressure or otherwise, thus surmounting the great desideratum of the Wet Meter. In his Patent Equitable Gas Meter neatness and strength are combined, the backs and fronts of the case being stamped by powerful machinery out of thick plate iron (tinned or galvanized); and the internal construction is of the best metal, which will resist the action of any impurity in the gas.

Old Meters may readily have the adjusting slide and hydraulic applied, thereby having accurate measurement assured.

Station Meters, Governors, &c., made on the shortest notice.

RUTTER ON GAS LIGHTING.

HUNDRED-AND-TENTH THOUSAND.

ADVANTAGES
OF
GAS IN PRIVATE HOUSES.

BY J. O. N. RUTTER, F.R.A.S.

A New Edition, Revised in 1853.

The sale of more than a HUNDRED THOUSAND copies is a tolerably good proof of the usefulness of this little book, which is intended for gratuitous distribution by Gas Companies. It has been very generally circulated in the metropolis, and in about three hundred of the principal cities and towns in the Empire. In America it is well known, as it is also in some of the British colonies. On the Continent it has been translated into several languages, and, in other respects, adapted to local customs and usages.

The Author is gratified by the encouragement he has received, and thankful for the success which has attended his labours. But he is not yet satisfied. In promoting the use of gas in private apartments a great deal has been done. A great deal more remains to be accomplished. In many parts of the kingdom the comfort and economy of gas-light are almost unknown. Prejudices still exist, and old-fashioned notions prevail; chiefly because no well-directed efforts have been employed in explaining and illustratiug the superiority of gas to lamps and candles. In proportion as the advantage of gas for domestic purposes are understood, will its sale increase. Let this department of gas-lighting be properly cultivated, and there will be nothing to fear from low prices. A large space, within the influence of every gas company, is still unoccupied. Those who are interested in the manufacture and sale of gas, are the persons who ought to make its benefits for lighting, cooking, and warming, better known. By these means they will receive good themselves whilst doing good to others. If difficulties be numerous and prejudices deeply-rooted—the more urgent the necessity for extra exertions, and the greater the merit when those exertions are properly rewarded. It should be remembered that, when every shop, and other place of business, have been lighted with gas, if it has not been generally adopted in private apartments, the work of the gas company has not been one-half completed.

With an earnest desire that the "Advantages of Gas in Private Houses" might still further assist the progress of gas-lighting, and the prosperity of gas companies, the Author has reduced the price from £6 to £5 per 1000 copies; 500 ditto to £3. 15s.; and any less number than 500 to 12s. per 100.

Just published, by the same Author,
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GAS IN DWELLING HOUSES:

ITS USES, CONVENIENCES, AND ECONOMY.

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A single copy of either of the above-mentioned books will be sent, on application to the Author ONLY, by payment of the postage (2d).

*** When 1000 copies are ordered, the title, address, and scale of prices of the Company, and any other notification connected with its business, will be printed on the covers without extra charge.

By the same Author, in 8vo, *price* 1s. 6d., *or free per post.* 2s.,

GAS-LIGHTING:

ITS PROGRESS
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In 12mo., *pp.* 12, *price* 2d., *or* 12s. *per* 100,
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STREET-LIGHTS;

And 12mo., *pp.* 18, *price* 3d., *or* 18s. *per* 100,

THE PRICE OF GAS.

Another edition of the pamphlet, entitled "Street-Lights," has just been printed, to meet the increasing demand consequent on its distribution where new contracts for the supply of gas to street-lamps are under discussion. It is pleasant to know that by such, apparently unimportant, instrumentality, the charge for gas to public authorities is becoming better understood, and the true commercial principle acknowledged, even if it be not in its fullest extent acted upon.

In royal 18mo., *pp.* 36, *with Illustrations, price* 1s.,

PRACTICAL OBSERVATIONS
ON THE
VENTILATION OF GAS-LIGHTS.

JOHN W. PARKER AND SON,
WEST STRAND, LONDON.

Black Rock, Brighton, 1853.

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INVERKEITHING, manufacture and sell at moderate prices, FIRE BRICKS, GAS RETORTS, SEWERAGE PIPES, and all kinds of best Fire-clay goods. They are the ORIGINAL MAKERS of Fire-clay Retorts, which work from Two to Four years, and are unsurpassed by any others.

TO GAS COMPANIES.

NEW PELTON MAIN GAS COAL.

Parties wanting a supply of these first-class GAS COALS, which are extensively used in the London and other gas works, will please to apply to Mr. JAMES JOICEY, Newcastle-upon-Tyne.

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COAL.—These excellent Gas Coals are wrought from the HUTTON SEAM *only*, and can be shipped either at the South Dock, SUNDERLAND; or Old Harbour, HARTLEPOOL; or Brandling Drops, SOUTH SHIELDS; on application to the WHITWELL COAL COMPANY, Sunderland.

TO GAS COMPANIES.

THE BRYMBO COMPANY,

NEAR WREXHAM,

Manufacture Cold Blast Retorts and Pipes of a very superior quality, and also ship good Gas and Steam Coals at Saltney, on the River Dee, and at Birkenhead.

Brymbo Iron Works and Colliery, North Wales.

London agent, Mr. J. W. Grazebrook, Bull Wharf, Upper Thames-street.

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JAMES LYNE HANCOCK'S

Vulcanized Indiarubber Hose Pipes and Tubing. Manufactory (and Warehouse), Goswell-mews, Goswell-road, London.

Gas Companies, Engineers, Gas Fitters, and the Trade generally, are respectfully informed this Tubing is now manufactured to any size, from ¼ inch bore and upwards, in 100-feet lengths, and perfectly cylindrical, either with or without a spiral wire inside.

VULCANIZED GLAZED FLEXIBLE TUBING, from ¼ inch up to 1 inch diameter, made in 24-feet lengths; or, covered with silk or worsted, up to 100 feet.

VULCANIZED HOSE, for FIRE ENGINES, BREWERS' USE, and for standing great pressures, (Rubber and Cloth combined), made to any length or size to fit the necessary screws, &c.

VULCANIZED INDIARUBBER AIR-TIGHT BAGS, made any size, for Gas Mains, with flexible tubes attached, and fitted with stopcocks complete.

PATENT FIRE-CLAY RETORTS.—

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GREAT REDUCTION IN PRICES—30 per cent. cheaper than any other Clay Retorts manufactured.

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		feet.	in.	£ s. d.	s. d.
Dee.....	12 in. by 12 in.	8	2½	2 0 0	5 0
"	14 in. by 12 in.	8	2½	2 8 0	6 0
"	16 in. by 13 in.	8	2½	2 12 0	6 6
"	18 in. by 14 in.	8	2½	3 0 0	7 6
"	19 in. by 13 in.	8	2½	3 0 0	7 6
"	20 in. by 14 in.	9	3½	3 12 0	8 0
"	24 in. by 15 in.	8	2½	3 16 0	9 6
Round.....	15 in. by 15 in.	8	2½	2 12 0	6 6
"	15 in. by 15 in.	10	2½	3 5 0	6 6
"	18 in. by 18 in.	8	2½	3 4 0	8 0
Oval Retort	18 in. by 12 in.	8	2½	3 0 0	7 6

All other sizes and shapes in proportion, to order.

References and further particulars may be obtained on application to the Patentee, Gas Works, BLACKBURN.

THE

JOURNAL OF GAS LIGHTING.

PUBLISHED MONTHLY.

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TO CORRESPONDENTS.

J. R. F., Shepton Mallet.—*The latest works on gas lighting are, "Clegg on Coal Gas," and "A Treatise on Gas Works," by Samuel Hughes, both published by Weale. A really practical work on the subject has yet to be written.*

J. J., Bideford.—*The substance is chiefly prussian blue, mixed with a little free sulphur and organic matter. It arises from the decomposition of the ferrocyanide of ammonia contained in the gas liquor under the circumstances mentioned by our correspondent. The possibility of obtaining prussian blue in this way was pointed out many years ago by Mr. George Lowe; but there is much difficulty in freeing it from sulphur and other impurities mixed with it, and which impart to it the dirty green hue so obvious in the sample sent to us.*

Circular to Gas Companies.

The notices required by the standing orders of Parliament, to be given in the *London Gazette* and local papers during the month of November of each year, by companies seeking statutory powers in the next session, are this year—so far as the Gas interest is concerned—unusually numerous, and important in their character. They embrace seven bills for the incorporation of new gas companies, two, if not three, of which will, in all probability, be contested; four others are promoted by companies already in operation without the authority of Parliament, upon one of which (the Sheffield Consumers') the great fight of the session will take place; fifteen others are introduced by companies seeking an increase in their statutory powers; seventeen more are improvement bills, apparently for extending the Manchester system of corporation trading in gas to other localities; and by another the Manchester gas commissioners themselves seek for increased powers of raising money for the extension of their works. The majority of the notices for vesting the supply of gas in the hands of public bodies, by means of improvement bills, are, we presume, principally intended to coerce gas companies into the supply of gas to public lights on lower terms than they are disposed to accept in the absence of some pressure, and cannot, consequently, be looked upon as *bond fide* attempts to force the Manchester monopolising system beyond its present limits. They, however, require to be carefully watched, to prevent the introduction of clauses onerous to the gas-consuming public. The following is a list of the notices given last month:—

Seven Bills for the Incorporation of New Gas Companies.

Beccles (Gas and Water).
Burnley Consumers.
Kingston-on-Thames.
Metropolitan Gas Works Supply.

(*Incorporation of Company; Powers to manufacture Gas and supply the Metropolitan Gas Companies, to make Arrangements with those Companies, to take Land for Works, and to construct Works.*)

Notice is hereby given that is is intended to apply to Parliament in the next session for an Act for all or some of the following purposes:—

1. To incorporate the Metropolitan Gas Works Supply Company, provisionally registered.

2. To enable the company to erect and maintain gas works on the northern side of the river Thames, near Devall's-house, in the parish of Woolwich, in the county of Kent.

3. To enable the company to make, maintain, vary, extend, enlarge, and use gas mains, pipes, and other apparatus, the main line thereof commencing at the gas works, passing along or across Bow-creek, Limehouse-cut, Bow-common-lane, Regent's-canal, Bridge-street, Bancroft-place, Mile-end-road, Globe-road, Green-street, Cambridge-road, Hackney-road, Old-street-road, City-road, Pentonville-hill, the New-road, Great Portland-street, Oxford-street, Regent-street, Conduit-street, Old Bond-street, Piccadilly, Grosvenor-place, Upper and Lower Eaton-street, Vauxhall-bridge-road, Vauxhall-bridge, New Bridge-street, Upper Kennington-lane, Vauxhall-road, Lower Kennington-lane, High-street, London-road, Blackfriars-road, Blackfriars-bridge, Bridge-street, William-street, Water-lane, and the intermediate lands, or some of those places and lands, and terminating at the City Gas Works, with the following branches from such main line:—

1st. At Bow-common-lane to the Great Central Gas Consumers' works.—2nd. At Bridge-street, Mile-end-road, through Bancroft-place, Johnson-street, York-place, Rhodes-well-road, White Horse-street, Brook-street, Back-road, and John-street, to the Commercial Gas stations.—3rd. At the junction of Hackney-road with Great Cambridge-road, through Great Cambridge-street, Gloucester-street, Haggerstone-lane, to the Imperial Gas Works, and the Independent Gas Works.—4th. At the junction of Old-street-road with Curtain-road, through Worship-street and Curtain-road, to the Chartered Gas Works.—5th. At the junction of York-road with the City-road, through Macclesfield-terrace, City-road, York-street, and Brick-lane, to the Chartered Gas Works.—6th. At King's-cross, through Old Saint Pancras-road and Wharf-road, to the Imperial Gas Works.—7th. Near Trinity Church, New-road, through Portland-street, New-road, Chapel-street, Edgware-road, Harrow-road, Brindley-street, and Kensall-road, to the Western Gas Works.—8th. At the junction of Grosvenor-place with Grosvenor-street West, through Grosvenor-street West, King's-road East and West, Kensington-canal, and Factory-lane, to the Imperial Gas Works.—9th. At Vauxhall-bridge-road, near Vincent-square, through Regent-street and Horseferry-road to the Chartered Gas Works.—10th. At Vauxhall-bridge-road, near Bessborough-street, through Bessborough Street and Place, to the Equitable Gas Works.—11th. At the junction of of New Bridge-street with High-street, Vauxhall, through High-street to to the London Gas Works.—12th. At the junction of Devonshire-street with Upper Kennington-lane, through Devonshire-terrace, to the Phœnix Gas station.—13th. Near the Elephant and Castle, through New Kent-road, Old Kent-road, and the Grand Surrey-canal, to the South Metropolitan Gas Works.—14th. At the junction of Wellington-street with Blackfriars-road, through Friar-street and Wellington-street, to the Phœnix Gas Works.—15th. At the junction of Holland-street with Blackfriars-road, through Holland-street and Bankside, to the Phœnix Gas Works.

4. To enable the company to carry on all the business of a gas light and coke company except the supplying of gas directly for private consumption; and, for the purposes of their business, to build, buy, provide, hold, and use ships, steamers, and other vessels, and to import coals.

5. To enable the company and the Victoria Dock Company (London) to make contracts and arrangements for the use by the company of the Victoria Docks, and to enable the company to make and maintain works and conveniences for landing coals, and accommodating vessels bringing coals, for the use of the company.

6. To enable the company to supply with gas the several gas companies now or hereafter established within the City of London and the Metropolitan Police District, or supplying gas within those limits.

7. To enable the company to make with those gas companies, or any of them, arrangements in the nature of an amalgamation of their interests, &c.

8. To authorise the company to guarantee to those gas companies, or any of them, any dividend on their shares, capital, or any interest on their debts, or any other benefit mutually agreed on.

9. To authorise those companies respectively to hold shares in the capital of the company.

10. To authorise the nomination, by those companies, or some of them, of directors of the company.

11. To authorise the company to hold shares in the capital of those companies respectively.

12. To authorise the nomination, by the company, of directors in those companies respectively.

13. To enable the company, and those companies, or any of them, to make arrangements and contracts with respect to such supply of gas.

14. To provide for the sanction, by such of the companies as are supplied with gas by the company, of the appointment and removal of inspectors of meters and auditors of the company.

15. To provide for the discontinuance of the manufacture of gas by companies supplied by the company.

16. To provide for the sale, lease, or other disposal by the companies discontinuing the manufacture of gas of such of their gas works, lands, buildings, and plant, as cease to be required.

17. To levy tolls, rates, and duties; alter existing tolls, rates, and duties; confer, vary, and extinguish exemptions from payment of tolls, rates, and duties; and to confer, vary, and extinguish other rights and privileges.

18. To confer on the Home Secretary or the Board of Trade, or some other public authority, powers of control with respect to the execution of some of the powers of the act.

19. To incorporate with the intended act all or parts of all or some of the following acts:—"The Companies Clauses Consolidation Act, 1845"; "The Lands Clauses Consolidation Act, 1845"; and "The Gas Works Clauses Act, 1847."

20. To repeal or alter all or parts of all or some of the several acts of Parliament relating respectively to Bow-creek, Limehouse-cut, Grand Surrey-canal, Kensington-canal, Grand Junction-canal, Regent's-canal, Paddington-canal, Vauxhall-bridge, Blackfriars-bridge, Harrow-road, City-road, Hackney-road, Commercial-road, Fulham-road, Old Pancras-road, Old North-road, New Cross-road, Surrey and Sussex Roads, Metropolitan Roads; London, Woolwich, and Blackwall Railway; Eastern Counties Railway, North London Railway, Blackwall Railway, Victoria-docks (London), river Thames, river Lee, Metropolitan Commissioners of Sewers, and Commissioners of Sewers for the Havering Levels, and to the several streets, roads, and other highways above named, and to all lands and houses to be taken or used for, or interfered with, by the works.

21. To confer on the company powers for the compulsory purchase of lands and houses.

And notice is hereby given, that on or before Dec. 31, 1853, printed copies of the Bill for the intended Act will be deposited in the Private Bill-office of the House of Commons.

T. L. MARRIOTT,
1, *Lancaster-place, Strand.* Parliamentary Agent.

RAMSBOTTOM (near Bury, Lancashire).
ROSSENDALE UNION (near Bacup).
TORMSHAM AND ST. MARY'S CONSUMERS (Torquay).

Four Bills for the Incorporation of Gas Companies already established without Statutory Powers.

DUKINFIELD.
HASTINGS AND ST. LEONARD'S.
SHEFFIELD CONSUMERS.
SURREY CONSUMERS.

Fifteen Bills for conferring increased Powers on Gas Companies already established by Special Act of Parliament.

ACCRINGTON (Gas and Water).
BOLTON.
BRIGHTON AND HOVE.
BURNLEY.
CARDIFF.
CHESTERFIELD (Gas and Water).
DARLINGTON (Gas and Water).
DEPTFORD.
IMPERIAL (Gas and Coke).—(Amendment of acts; increase of capital, &c.) Notice is hereby given, that application is intended to be made to Parliament, in the ensuing session, for an act to alter, enlarge, consolidate, and amend all or some of the provisions of the several local and personal acts of Parliament following, relating to the Imperial Gas Light and Coke Coke Company, viz.:—An act passed in the session of Parliament held 1st and 2nd years of the reign of King George IV., entitled, "An Act to establish an additional Company for Lighting certain Parts of the Metropolis, and Parts adjacent, with Gas"; an act passed in the 4th year of the reign of King George IV., entitled, "An Act to alter, amend, and enlarge the Powers of an Act of his present Majesty's Reign, intituled, 'An Act to establish an additional Company for Lighting certain Parts of the Metropolis, and Parts adjacent, with Gas'"; and an act passed in the 10th year of the reign of King George IV., entitled, "An Act to alter and amend Two Acts of his present Majesty for establishing and regulating the Imperial Gas Light and Coke Company"; and to enable the said company to increase the amount of their capital by the creation of shares, with or without preference or priority in payment of dividend; and to capitalise certain moneys expended by them, and to raise a further sum by way of loan, and to purchase and hold additional lands, for the purposes of their undertaking. And notice is hereby given that copies of the bill will be deposited in the Private Bill Office of the House of Commons on or before the 31st day of December next.—Dated the 12th day of November, 1853.—WILDE, REES, HUMPHRY, and WILDE, Solicitors for the Bill.
KINGSTON-ON-HULL.
LEEDS NEW.
MIDDLETON.
RADCLIFF AND PILKINGTON.
STAFFORD NEW.
SUNDERLAND SUBSCRIPTION.

Eighteen Improvement Bills for conferring upon Commissioners or other Public Bodies Powers to erect or purchase Gas Works, or to contract for a Supply of Gas.

ABERGAVENNY.
BACUP.
BARNSLEY.
BETHESDA AND LLANLLECHID (near Bangor).
BLACKBURN.
BOLTON.
BURNLEY.
DARLINGTON (Board of Health).
HULL (Board of Health).
KINGSTON-ON-THAMES.
LLANDUDNO.
MANCHESTER (power to raise more money, &c.).
OLDBURY.
PORTSMOUTH.
RYDE.
WELLINNGTON (Salop).
WEST HARTLEPOOL.
YEOVIL.

We give the two most important notices at length, as they may, in some respects, be looked upon as rival projects, and both bills will have to be adjudicated upon by the same tribunal. The Imperial Gas Company has not been in Parliament since 1831, and has, consequently, a long catalogue of grievances—real or imaginary—to answer for. The supply of gas of high illuminating power, by the same company and at the same price, under the pressure of competition in one district, whilst another and a much larger district, where no such pressure exists, is, and has for some time past been, supplied with the worst gas in the metropolis, are anomalies which must of necessity undergo a searching investigation, with the view of protecting the public against a continuation of similar practices. It is notorious that the gas of the Pancras station of this company has latterly been at the bottom of Mr. Lewis Thompson's table of the illuminating power of the metropolitan gases, whenever it has been experimented upon; while that of the Fulham station has been the highest of all except the cannel gases. The consumer in Marylebone and Pancras, where there is no competition, has, consequently, been placed in a less favourable position than those of Chelsea and Belgravia, where competition has been invited. If the Imperial Company have really the tact they are reputed to possess, they would voluntarily insert clauses in their new bill fixing the minimum illuminating power of their gas at 13 standard sperm candles (120 grains per hour), for the 3½ feet per hour burner, raising the price to 5s. 6d. per 1000 feet, and inviting all the other metropolitan gas companies, without exception, to follow their example. We make these observations in no unfriendly spirit to the Imperial Company, whose courage in resisting the revolutionary attacks of the "cheap gas" agitators justly entitles them to our consideration and respect; but as the present is, in our opinion, a favourable moment for placing the metropolitan gas supply upon a safe and satisfactory basis, our humble efforts shall be unceasingly directed to the accomplishment of that object. The Western Company have incontestibly proved that gas of higher illuminating power than the metropolis has been hitherto accustomed to, may be successfully introduced; and it is folly to attempt to stop its progress by offering a supply of 16-candle gas at 4s. 6d. per 1000 feet in one district, while the consumers in other districts must pay the same price for an article 25 per cent. inferior in quality. A careful examination into the bearings of the whole question has satisfied us that the metropolis may be supplied with gas of the quality we propose (13 standard sperm candles for the 3½ feet burner), without any derangement of the cannel coal market; and, if such a standard can be agreed upon by the various companies, it would place at the disposal of the public a gas practically more useful than that now supplied by the cannel gas companies, which, from its extreme richness, is too apt, in the hands of incautious consumers, to deposit its unconsumed carbon.

The project detailed in the notice of the "Metropolitan Gas Works Supply Company," of removing the manufacture of gas to a distance from the metropolis, is a bold and comprehensive measure, framed, so far as we can judge it, in no unfriendly spirit to the metropolitan gas companies generally, but bearing on the face of it the evident impress of the master spirit through whose instrumentality Parliament has decreed that opaque smoke shall cease to be vomited forth from the myriads of chimneys in this great city. The same hand which carried the Smoke Nuisance Suppression Bill, in spite of the opposition it encountered from the perpetrators of the nuisance itself, is clearly visible in this new attempt to improve the atmosphere inhaled into the lungs of two millions and a half of inhabitants; and, as a similar measure to the one now under consideration was imposed upon the Parisian gas companies by the treaty they last year concluded with the municipal authorities, we may take it for granted that the executive authorities in

both countries are of opinion that the existence of such manufactories as gas works in the midst of human habitations is incompatible with the public health. Whether this opinion has any foundation, is a disputed point into which we will not now stop to inquire; but the simple fact that a gas work *does* interfere with the comfortable enjoyment of the surrounding property, though not sufficiently so as to constitute a nuisance at law, is quite enough to set the present energetic Home Secretary in motion, with the view of devising a remedy.

We have not seen a prospectus, and have no knowledge of the details of the project, and are consequently unable to pronounce any opinion either upon its feasibility or the probability of its success as a commercial operation; but if the scheme be practicable, and is carried out with the co-operation of the present gas companies, they will be released from many of the difficulties which now surround them, and the unwholesome and vexatious opposition in which some of them are engaged, to the great detriment of their pockets and patience, will cease. We take it for granted the promoters will be able to prove that they can deliver gas into the gasholders of the present companies at a less cost than the latter are now producing it for; and, if so, we confess we are considerably predisposed in favour of the plan, from the facility its adoption would afford of carrying out our views as to a uniform standard in the illuminating power; and we shall therefore await, with considerable interest, the future development of the details of the scheme. We have ever been the advocates of honest enterprise; but if we detect any trickery in the measures of this company, or any cloud upon its (at present) fair surface, we shall be the first to expose it, as we are now the first to bid the project welcome as the forerunner of a general scheme of amalgamation, which, in the common interest of gas consumers and gas manufacturers, we have ever advocated.

At a meeting of the gas committee of the Southport Commissioners, held on Oct. 28, it was resolved that—

"The committee, after investigating the gas accounts, consider that it appears that in former years several items placed to capital account, ought now to belong to revenue account. That, were a fair allowance to be made for depreciation annually, the gas accounts would not show a profit to the ratepayers, but the reverse. The consumption, however, continues to increase, by which the cost of the gas is proportionably reduced. As regards the management, this committee recommend no change for the present, further than that Mr. Hodgkinson should be relieved from some portion of his duties, and be requested to give more time and attention to the gas works, and see that the workmen do their duty. That Mr. Alfred King, of Liverpool, be requested to appoint some competent person to test the illuminating power of the hydro-carbon gas at Southport, as compared with Wigan cannel gas; and that Mr. Stephen White, or any other advocate of the hydro-carbon gas, be invited to be present. That Mr. Pearson be requested to convey the foregoing resolution to Mr. King."

This resolution has been subsequently confirmed by the commissioners generally; and we believe Mr. King has undertaken to make the examination himself. His report has not yet been made public, but may be daily expected. We learn, however, that it was decided on the 6th instant, by a majority of one vote, to commence the manufacture of gas from Wigan cannel.

Provincial gas managers have repeatedly expressed to us their surprise that the metropolitan companies do not come to some arrangement among themselves for abandoning the antiquated system of selling their coke by measure instead of by weight. A chaldron of coke in London now means any quantity from twelve to sixteen cwt., which will satisfy the buyer. Let the metropolitan gas companies agree, for the future, to sell coke by the sack or ton of 112 lb., and, while they will put an end to a vast deal of robbery now practised through the connivance of their servants with the coke dealers, they will establish a uniformity of system which cannot fail to be beneficial to their interests.

The London coal market still continues its upward movement, and all consumers of coals who are not fortunate enough to have made contracts in the spring, are compelled to pay enormous prices. Best house coals realised 30s. per ton on the last market-day, and gas coals 21s. Freights from the north remain unaltered. The Wigan colliers have resumed work at the former rate of wages, and the great Lancashire gas works have consequently returned to the exclusive use of cannel coal.

Dr. Letheby has made his seventh report upon the illuminating power of the gas supplied by the Great Central Company, but, imitating the reserve practised by the supporters of that company, we shall defer its consideration till the measures we are about adopting for testing its accuracy are completed.

THE RIVAL SCHOOLS OF GAS MANUFACTURERS.

Nothing is more common, and perhaps, after all, more easily to be excused than a certain exhibition of ill temper on the part of a defeated disputant; and, therefore, we readily overlook the "high heat" of Mr. Paterson's last communication, which will be found in another column—though, unlike the application of a similar temperature to cannel coal, it does not appear to evolve much illuminating matter in this instance. It seems to be agreed that "the heat required for distilling a charge of coal is in proportion to the amount of volatile matter in the coal operated upon"; but our correspondent is ignorant, it seems, of what we mean by "the low-heat system." It strikes us that this admission comes rather late from one who has previously condemned that system, unless, indeed, upon the principle "*damnant quod non intelligunt*." Perhaps it might have saved some trouble, both to ourselves and to Mr. Paterson, had he deigned, in the first instance, to ask us for an explanation. As it is, we have only to remark that he cannot possibly be farther astray than in his present ideas of what London gas-makers call "a low heat"; in short, we have never known a more decided instance of error. We wish to be extremely gentle with Mr. Paterson, and regret only that he should have laid himself so much open to comment. According to our correspondent, with coal containing 29 per cent. of volatile matters, "the minimum production of oil and maximum illuminating power of gas take place at a temperature ranging from 700° to 750°" (Fahr. we presume). Now, we can assure Mr. Paterson that little or no gas at all would be given off from such coals at the temperature he mentions, which is very far indeed beneath the temperature called "a low heat" in England. Without wishing to fret the *amour propre* of any one, and still less of our rather irascible correspondent, we will give a table of temperatures, selected chiefly from Dr. Ure's last edition of "Arts and Manufactures," with a view to elucidate the subject of high and low heats:—

	Degrees Fahr.
Melting point of lead	612
Ditto zinc	680
Red heat visible in the dark.....	800
Red heat visible in daylight.....	950
Melting point of alloy { copper 8 / zinc 2 } ..	1200
Ditto silver.....	1280
Ditto alloy { copper 9 / zinc 1 } ..	1350
Ditto copper	1570

Now, the melting point of the first alloy, 1200°, is the best temperature for Newcastle coals, where good quality of gas is sought for, and the melting point of the second alloy is too high; but, if our correspondent will throw a few coils of copper wire (bell wire) into one of his retorts, he will find that the temperature he uses is equal to the fusing point of copper, 1570° Fahr.; and this for Boghead, or good Lesmahago, is not too high. As to distilling coal at 750°, it is simply ridiculous — even Mr. Young, the paraffine manufacturer, distils Boghead at something beyond 1000°, and he wishes to make no gas.

We are not, however, disposed to permit the charge Mr. Paterson makes against us, of allowing ourselves to become "the stalking-horse of flaming attacks against *men* instead of *principles*," to pass without an observation. In permitting him to make it in our columns, we have given proof of our independence, and desire to afford to all who may dissent from us an opportunity of expressing their views. With us, men, whether individually or associated in corporate bodies, are all alike; and, if reference is at any time made to them by us, it is as exponents of a principle, and not in their individual capacity. We have, in the present instance, protested against the principle advocated by a large section of our brethren, of propelling consumers' gas meters at railway speed, by subjecting a certain class of coal to distillation at a temperature which Mr. Paterson himself does not defend; but in so doing we have carefully abstained from introducing the name of a single opponent, except that of the champion who undertook to disprove our position, but who is ultimately driven to admit that he knows nothing whatever about the matter; and who, it is to be hoped, when he next takes up his pen, will have previously made himself master of the subject of which he undertakes to enlighten the public.

COMPARATIVE TABLE OF SIX MONTHS' INCOME AND EXPENSES OF THE UNDERMENTIONED METROPOLITAN GAS COMPANIES.

EQUITABLE GAS COMPANY,

For the Half-year ending June 30, 1853.

Income.

Gas rental (after deducting the gas supplied by other companies)		£19,275 19 7

Expenditure.

Coals consumed	£7,970 15 7	
Less coke, tar, and liquor, sold	3,672 8 7	
	4,298 7 0	
Lime, &c.	121 2 6	
Wages (including lamplighting)	2,306 6 6	
Salaries	200 0 0	
Wear and tear of plant	1,553 2 7	
Total cost of gas manufacture	8,478 18 7	
Directors	286 13 0	
Auditors	30 0 0	
Solicitor's charges	21 11 1	
Salaries and wages (including inspectors and collectors, and repairs of mains	1,269 1 8	
Incidental expenses	172 10 6	
Stationery and advertisements	68 12 11	
Rent and taxes	323 1 7	
Bad debts and allowances	341 13 5	
		10,992 3 7
Profit, when only the corresponding items in the Great Central balance-sheet are deducted		8,283 16 0
Proportion of working expenses to gas rental		57·01 per cent.
Proportion of profit to gas rental		42·99 „

Items omitted in the above Table. which have to be added to the Expenditure to agree with the Balance Sheets.

Ten per ct. on meters	£524 17 7	
New service pipes	539 5 4	
Balance of accounts for telescoping a gasholder	364 5 0	
Posts and columns	151 19 6	
		1,579 17 5
Profit as per balance sheet		£6,703 18 7
Proportion of net profit to gas rental		34·72 per cent.

GREAT CENTRAL GAS CONSUMERS' COMPANY,

For the Half-year ending June 24, 1853.

Income.

Gas supplied		£23,374 16 9

Expenditure.

Cost of gas purchased	£11,549*14 9	
Directors	500 0 0	
Chemical referees	127 10 0	
Official auditors	71 4 6	
Corporation inspector	50 6 8	
Corporation meter-testing	16 2 6	
Solicitor's charges	380 1 3	
Salaries	810 9 2	
Incidental expenses	634 19 3	
Stationery and advertisements	137 8 5	
Wages	463 7 4	
Rent and taxes	642 14 3	
Bad debts and allowances	287 19 5	
		15,671 17 6
Profit as per balance sheet		£7,702 19 3
Proportion of working expenses to gas rental		67·04 per cent.
Proportion of profit to gas rental		32·96 „

* The accidental transposition of the 4 and 9, which occurred in this table last month, is corrected in this.

To place this company on a par with the Equitable Company, a further sum of £1915. 19s. 3d. should be deducted for the deterioration of works, plant, and meters. With this deduction the proportion of net profit to gas rental is		24·75 per cent.

WESTERN (CANNEL) GAS COMPANY,

For the Half-year ending June 30, 1853.

Income.

Gas supplied		£11,396 5 9

Expenditure.

Cannel coal	£4,844 0 7	
Wages, gas-making	1,213 9 3	
Lamplighting	466 0 9	
Repairing lamps	121 19 3	
Lime	244 12 2	
Water, oil, and sundries	164 19 6	
Works, renewal	465 1 10	
Direction and salaries	1,320 15 1	
Rent, rates, and taxes	176 2 4	
Stationery and printing	80 5 0	
Incidental expenses	174 17 11	
Bad debts	230 15 2	
	£9,502 18 10	
Deduct coke, breeze, tar, and gas liquor	1,205 5 9	
		8,297 13 1
Profit when only the corresponding items in the Great Central balance-sheet are deducted		3,098 12 8
Proportion of working expenses to gas rental		67·65 per cent.
Proportion of profit to gas rental		32·35 „

Items omitted in the above Table. which have to be added to the Expenditure to agree with the Balance Sheets.

Reserve-fund	£263 5 6	
Restoring pipes & meters	120 3 1	
		383 8 7
Profit as per balance-sheet		£2,715 4 1
Proportion of net profit to gas rental		23·82 per cent.
Proportion of net profit (including hire of meters) to gas rental		26·15 „

LONDON GAS COMPANY,

For the Half-year ending June 30 1853.

Income.

Gas rental (after deducting the gas supplied by other companies)		£40,018 8 6

Expenditure.

Coals	£20,670 10 1	
Lime, &c.	337 5 6	
Stores	1,224 15 11	
Wages (including lamplighting)	7,573 19 4	
Wear and tear	2,346 19 3	
Directors and auditors	530 0 0	
Salaries	1,424 3 0	
Rates and taxes	834 5 6	
Balance of rents	191 7 0	
Commission	798 11 3	
Stationery and incidental expenses	807 16 2	
Allowances and bad debts	818 19 1	
	£37,558 12 1	
Deduct coke and other products and discounts	10,357 3 9	
		27,201 8 4
Profit, when only the corresponding items in the Great Central balance-sheet are deducted		12,817 0 2
Proportion of working expenses to gas rental		67·97 per cent.
Proportion of profit to gas rental		32·03 „

Items omitted in the above Table. which have to be added to the Expenditure to agree with the Balance Sheets.

Royalty	£511 17 10	
Repairing and fixing meters	1,371 17 7	
Depreciation	2,794 17 4	
		4,678 12 9
Profit as per balance sheet		£8,138 7 5
Proportion of net profit to gas rental		20·33 per cent.

THE "COOKED" DIVIDENDS OF THE GREAT CENTRAL COMPANY.

"Now, I repeat that my process and system enable me to manufacture and distribute gas on a large scale more cheaply and efficiently than any board of directors can possibly do."—*Mr. Croll's Letter of March 24, 1852, to the London Gas Shareholders.*

HAD we hammered away with our editorial sledge for a twelvemonth, till the whole tribe of gas stags and touters were beaten into a pulp, we should still have failed to demonstrate the fallacy of the presumptuous proposition with which we have headed these remarks, so completely as has been done in a few weeks by the skulking clique of hungry schemers to whom its writer acted as "stalking-horse"; for as long as the balance-sheets of other metropolitan gas companies were hidden from the public eye, and could not be cited without betraying the confidence reposed in us, we were compelled to confine ourselves to generalities, and to forego the use of weapons which would have annihilated the whole gang at a blow. Fortunately, however, for us, they have adopted a course by which the balance-sheets of the Equitable and London Gas Companies have been made public; we are, consequently, relieved from the restraint which the secrecy hitherto observed in these matters had imposed upon us; and our readers are now able to judge for themselves, from the figures before them, whether the facts thereby disclosed do not fully justify us in the course we have from the commencement adopted, in dealing with the system by which the Great Central Gas Company has "Hudsonised" its dividends, and given a fictitious value to its shares, for the benefit of some of the large holders, who have not failed to clear out, and leave their dupes to find how they have been victimised. It will require something more than Mr. Dakin's eloquence to satisfy such, when they come to discover the mistake they have made.

Many of our readers are aware how the assertion has been ostentatiously paraded before the public, that the working expenses of the Great Central Company amounted to only 62 per cent. of the gas rental, while those of other metropolitan companies ranged from 77 to 86 per cent. The comparative table we last month published of the balance-sheets of four companies showed clearly how most of these differences arose; but, as the accounts of the Equitable Gas Company for the half-year corresponding with the other three accounts had not then been published, we were compelled to adopt the one of the previous half-year. As, however, the corresponding one is more favourable to the Equitable Company than its predecessor, it is only fair to the management of the latter company again to repeat the table—correcting, at the same time, an error into which we had fallen with regard to the proportion of the gas rental of the Great Central Company derived from private lights. It is now stated that 1700 public lamps are included in the gross rental of £23,374. 16s. 9d.—an ominous fact for the dividend on the current half-year, as the present contract is made at a reduction of 14s. 6d. per lamp, which takes off £616 from the half-year's rental without diminishing the charge for gas; and this, be it remembered, is a contract made for three years.

The following comparative accounts tell their own tale. The Equitable Company have, by a system of costly repairs of their mains, reduced their leakage of gas to the extent of nearly one-half of what it formerly was, and are now reaping the benefit of so judicious a measure. The present balance-sheet may also be further favourably influenced by the increased value of coke, the old contracts for the supply of coal not having yet run out. It is, therefore, not improbable that the manufacturing expenses of succeeding half-years may slightly exceed the present one; but the increasing rental may possibly counterbalance this—at all events, it presents a complete refutation of Mr. Croll's assertion in his letter to the London gas shareholders above cited:—

	Equitable Company.	Great Central Company.	Per Centages on Gas Rental.	
			Equitable Co.	Gt. Central Co.
Manufacturing Account.	£ s. d.	£ s. d.		
Coals consumed	7,970 15 7			
Less coke, tar, and liquor, sold	3,672 8 7			
Net cost of coals	4,298 7 0			
Lime, &c.	121 2 6			
Wages, including lamplighting	2,306 6 6			
Salaries	200 0 0			
Wear and tear of plant	1,553 2 7			
Total cost of gas produced	8,478 18 7	11,549 14 9	43·98	49·41
Distribution Account.				
Directors	286 13 0	500 0 0		
Chemical referees	....	127 10 0		
Official auditors	....	71 4 6		
Auditors	30 0 0	....		
Corporation meter inspectors	....	50 6 8		
do testing	....	16 2 6		
Solicitor's charges	21 11 11	380 1 3		
Salaries and wages, including inspectors and repairs of mains	1,269 1 8	1,273 16 6		
Incidental expenses	172 10 6	634 19 3		
Stationery and advertisements	68 12 11	137 8 5		
Rent and taxes	323 1 7	642 14 3		
Bad debts and allowances	341 13 5	287 19 5		
Total charges of distribution account	2,513 5 0	4,122 2 9	13·03	17·63
Total manufacturing and distribution expenditure	10,992 3 7	15,671 17 6	57·01	67·04
Reserve for Depreciation of Plant, &c.				
Ten per cent. on meters	524 17 7			
New service-pipes	539 5 4			
Balance of account for telescoping a gasholder	364 5 0			
Posts and columns	151 9 6			
Amount carried to depreciation fund	1,579 17 5	nil.	8·27	nil.
Per-centage of total expenses to gas rental, as per balance-sheets	....	....	65·28	67·04

This table settles the question as to the relative commercial value of the systems of manufacture adopted in the two establishments; and it will be instructive further to examine how it happens that, under such apparently favourable circumstances, the shares of the Equitable Company have been so long depressed. The proportion of their capital to their rental is but slightly in excess of that of the Central; and yet their shares are at 45 per cent. discount, while the latter are *nominally* at from 20 to 25 per cent. premium, though this is no indication of the price at which buyers can be found. The explanation is that the Equitable Company, in its earlier days, unfortunately adopted the plan, too frequent with new gas companies, of paying dividends out of capital till they could get no further credit, and the system was consequently

brought to a stand. New directors were then appointed, who resolved at first to suspend and subsequently to limit the dividend to 2½ per cent., and to carry the surplus to the credit of a defalcation account, of which upwards of £13,000 is still unliquidated. The measure bears very heavily upon those shareholders who have only a life interest in the property; and as the company is now really earning 5 per cent. upon its share capital, besides providing for the payment of interest upon its debentures, it is not surprising that the shareholders are clamorous for an increased dividend. The following table exhibits clearly the comparative financial position of the Equitable and Great Central Companies, based upon their last balance-sheets:—

	Equitable Company.			Great Central Company.		
	£	s.	d.	£	s.	d.
Gas rental for half-year	19,275	19	7	23,374	16	9
Deduct total manufacturing and distributing expenses	10,992	3	7	15,671	17	6
Gross profit for half-year	8,283	16	0	7,702	19	3
Deduct reserve for depreciation, in the same proportion, in the case of the Great Central, as is actually charged by the Equitable	1,579	17	5	1,915	19	3
Net profit on the half-year	6,703	18	7	5,787	0	0
Value of the properties at 16⅔ years' purchase of the net annual profits	231,464	6	0	192,900	0	0
Add surplus floating assets of each company, exclusive of debenture debt	11,543	19	8	9,225	17	0
	243,008	5	8	202,125	17	0
Deduct debentures' debt	47,600	0	0	66,000	0	0
Real value of the share capital of each company	195,408	5	8	136,125	17	0
Number of shares	4,000			15,000		
Value per share at par	£50			£10		
Intrinsic value per share, as above	£48	17	0	£9	1	6
Quoted value per share in the market	£26 to £28			£12 to £12½		

IGNORANCE OF THE PRESS ON GAS MATTERS.

A daily provincial newspaper of extensive circulation has lately published an article upon the subject of gas meters, which, for pure and intense ignorance on the part of the writer, is, we sincerely hope, not only unrivalled in this, but also in any other country. That so much undiluted "bathos" should have been garbled together at all, is of itself a most painful occurrence; but that it should have been so garbled in the year 1853, and in England too, is one of those galling facts that must ever be regarded as a kind of national calamity; and we are thus induced to comment upon its preposterous absurdity for the purpose of convincing posterity that such a frightful exhibition of benighted stupidity no more represents the existing condition of British knowledge, than the presence of a bow and arrow in the windows of our toy-shops would warrant the conclusion that we are still the same semi-nude savages that Cæsar found us. The writer of that article has evidently never seen a gas meter in all his life; and, albeit he may have seen a conjuring-box, is most certainly "no conjurer." The gentleman who proposed "to bottle sunbeams for the purpose of growing cucumbers" was, after all, not totally ignorant of his subject, for he must have known, at least, that sunbeams were useful in the growth of cucumbers. But this dreary gas-meter scribe is very far behind the cucumber grower, for he cannot distinguish between a meter and a pressure gauge, and, in the ecstasy of his delight at finding them, as he supposes, identical, he is found to indulge in the exclamation, "Oh, propitious discovery!" though, for any force or application this has to the question of gas consumption, he might with equal propriety have cried, "Hot mutton pies."

It would be vain to follow such a goose through the foggy quagmire of his foolish cackling; but, taking all his absurd data respecting compressed coal gas for granted, the conclusion would be exactly opposite to that which he draws in this case. According to his gooseship, the gas of the Portable Gas Company was compressed beneath a force of about 133 atmospheres, which implies that many thousands of cubic feet were condensed into the space of one cubic foot; and this one cubic foot, according to our writer, passed, "in its compressed state," through the meter, and through the jets; consequently it must have registered itself on the index of the meter as one cubic foot, instead of many thousands of cubic feet. And this "was not a fatal circumstance for the company in question"!! If so, we envy the vitality of the Portable Gas Company, which must surely have had "more lives than a cat."

But the public ought to know that "the quantity of gas consumed is regulated by the pressure at the head or source of supply, totally irrespective of the bore of the pipes or jets which convey it to the points of consumption." Stop-cocks are, therefore, "all gammon," and of no avail; for, "let the orifice through which the gas is discharged be ever so small, the density of the jet and the quantity of gas expended will be equal to that which the feed-pipe itself could discharge"!!! Nay, "were it not for this, the fact that gas is compressible would no longer be tenable"!!!! It follows, therefore, that any person who discovers that gas will flow more rapidly through a large than through a small orifice, in some strange way or other controverts "the fact that gas is compressible"! We are so thoroughly ashamed of the frightful folly of the writer in question, that we refrain from giving even the name of the journal which his lucubrations disgrace. Those of our readers, however, who wish to verify the accuracy of the following quotation will find the newspaper itself at their service in our office, where we intend shortly to hang it up, duly framed and glazed, as the greatest gas curiosity of modern times. And now for the quotation:—

Gas "meters" are the great wizard inventions of the age. "They are meters," save the mark! And "they are not meters." Oh! propitious discovery! They are "pressure gauges," say some persons. "They are not pressure gauges," exclaim the gas companies. When such disputes as these occur, honest ends are often attained. For our own part, we question much whether the great Wizard of the North ever played off a greater delusion on the public with the same success. The gas meter is a great conjuring box, and those who perform the best tricks with it, are mainly indebted to engineers and chemists, who act as the accomplices of the adroit performers.

The first and great peculiarity of all gases is the extraordinary extent to which they will expand and to which they can be compressed, and coal gas, by some strange perversity of physical arrangement, is capable of greater compression than many others. The Portable Gas Company, of London, usually compressed their gas in the bottles, in which they delivered it to their customers, to a density of 2000 lb. to the inch, or about 133 atmospheres. The evil of this high density or pressure was, that the gas passed through the consuming pipes at precisely the same density at which it stood in the bottle or magazine. The consequence was, that the jet was discharging gas at a pressure of 2000 lb. to the inch, instead of in a volume equal to about 4 lb. or 5 lb. to the inch, which is all that would be required to produce the most brilliant light. Hence the quantity of gas consumed was 1995 lb. to the inch more than was actually necessary for the purposes of lighting.

This was not a fatal circumstance for the company in question. They, as a matter of course, employed the "meter," which registered most accurately the number of pounds pressure to the inch, with which the company charged its customers in the usual way, "as per meter," for so many thousand feet. Now, this company's mode of doing business will serve to illustrate the gross imposition, if not actual fraud, to which the public are exposed, in being made to pay for any pressure which the gas companies choose to put on their "meters," instead of the low luminous volume required.

At one period the public were allowed the privilege of burning gas without a "meter," but they are now compelled, forsooth, to use an instrument of plunder, by which companies grow rich. Liverpool has long been fleeced to a fearful extent by this "meter," and "extra burners" system. The latter is, perhaps, a shade more iniquitous than the meter itself. The quantity consumed is regulated by the pressure at the head or source of supply, totally irrespective of the bore of the pipes or jets which convey it to the points of consumption, or the number of orifices through which it is discharged. Large pipes are used for convenience and economy in delivery. Plenty of pipe room relieves the gasometer by drawing off the gas; and it matters not what the bore of the pipes may be which convey the gas from the main to the gas "meters" of the consumer, the pressure on the "meter" will be precisely the same; and let the orifice through which the gas is discharged be ever so small, the density of the jet, and the quantity of gas expended, will be equal to that which the feed-pipe itself

could discharge. Were it not for this, the fact of gas being compressible would no longer be tenable.

To be charged, therefore, for the mere subdivision of a column of gas, which would be consumed by one as well as fifty burners, is an imposition to which the public ought *not* to submit. The plunder of the "meter" scheme may be carried on to any extent. The companies have only to increase the pressure, by employing machinery to force the gas into their pipes, when the "meters" will do their part, and the fleecing process may be increased *ad libitum*. It is really a monstrous thing to say that all these corporations have been established by acts of Parliament, and that the collective wisdom of our enlightened legislative conclaves has not discovered the possibility of fraud being perpetrated by such means to an extent hitherto unknown. That the chemical and engineering professions have remained silent so long is equally astounding.

Every chemist is aware, or he ought to be, of the compressibility of gases, and coal gas in particular; and every practical engineer must, or ought to, know the utter impossibility of measuring any given number of cubic feet of gas at a given density—say 5 lb. to the inch—by the gas "meter" in ordinary use. A real meter is an intrument which will take in a certain quantity, in feet or inches, at a given density. If 5 lb. to the inch be sufficient, it should be constructed to receive and give off, so many inches or feet at 5 lb. to the inch density, totally irrespective of the pressure in the feed-pipes. Such an instrument would really be a meter, and not a mere gauge, which registers pressure only, and debits the consumer with four times the quantity of gas he really requires!

Few, perhaps, of our practical readers will be disposed to consider that any amount of castigation could be too severe for the writer of such arrant nonsense as the above; but, in our opinion, its mere republication carries with it more punishment than the sharpest criticism could inflict. As, however, the writer of it may now desire to know something of the real value of the instrument he has so erroneously condemned, we beg to assure him that the Crosley wet gas meter, as at present manufactured, is, in the commercial sense of the word, a perfectly correct measurer of gas, and, moreover, singularly simple in its action, as well as accurate in its results. It is, indeed, a truly philosophical instrument, and constructed on the purest and most unerring mathematical principles.

Communicated Articles.

PLAN FOR CLEARING THE ATMOSPHERE OF TOWNS FROM THE SMOKE OF DOMESTIC FIRES,

WHICH ARE THE CHIEF SOURCES OF FULIGINOUS IMPURITIES.

By Julius Jeffreys, Esq., F.R.S., F.G.S.

Of all impurities deteriorating the atmosphere of towns, smoke is by far the most general and pervading. It is not the carbonic acid present in smoke, and the unavoidable product of the combustion of fuel, which chiefly renders smoke so injurious to health. This gas, when carried up chimneys and dissipated in the general atmosphere, is not in sufficient proportion to the whole seriously to contaminate it. It is the visible smoke itself, with its acrimonious salts, which is mainly deleterious to health, especially to the organs of respiration. It is also a source of great discomfort, and waste of property and time; it darkens the atmosphere, depriving cities of wholesome and convenient light; it destroys the beauty of buildings, and spoils property of all other kinds, as well as decorations, furniture, and books; it soils linen and houses, probably quadrupling the quantity of washing and scouring which would otherwise be requisite. In London, the injury to property and shop-goods, and the waste of labour in correcting its effects, together exceed, perhaps greatly, the whole cost* of the fuel consumed in the metropolis.

A problem of greater public and domestic importance can scarcely be proposed than to clear the atmosphere of towns from smoke. The sources of smoke may be placed under two heads—manufacturing and domestic. The fuel under the former head, being invariably burnt in closed furnaces, admits, beyond a question, of having its smoke consumed by suitable means, as will be proved by the gradual enforcement of Lord Palmerston's important act. But the great bulk of smoke, of all towns, flows from the latter source—domestic fires. In London it probably amounts to nine-tenths of the whole..

To consume the smoke of coal burnt in open domestic fires may at once be pronounced impossible in practice. The only remedy is to avoid generating smoke at all, by employing non-fuliginous matter as fuel.

It is more than fifteen years since jets of gas were first lighted in a grate, under an open chimney, as a substitute for a common fire; but the attempt was unscientific and practically useless. Gas flame emits little heat by radiation, compared with that which, in such a case, it sends up the chimney in a combined state. To arrest a portion of this combined heat of gas thus going to waste, by making the flames play upon and excite to incandescence, certain incombustible matters, such as asbestos, was an ingenious modification introduced by Mr. Brockedon, and it gave a practical utility to what had been a barren attempt. Dr. Bachhoffner made a further improvement by demonstrating that a certain other arrangement, which had been long known merely as a philosophical toy, namely, platinum rendered incandescent by gas, admitted of being expanded into the scale of an open fire, and at a cost which may be considered very moderate, when its attractive qualities and many advantages are taken into account. It is to be hoped that by the affluent this fire of incandescent platinum will become duly appreciated.

In all these cases, however, it is manifest that the whole of the heat radiated by the fire is ultimately derived from the combustion of gas—the incandescent matters giving out no heat of their own, but heat merely borrowed from the gas currents. Now gas, under any circumstances, cannot but be too expensive a fuel for general use. The high price of charcoal places it also out of the list of fuels generally available. Anthracite and coke alone remain from which it is possible to select a cheap and smokeless fuel, but unfortunately they are neither of them sufficiently combustible for use in common domestic grates; it is difficult both to light them and to keep them alight in an open grate. To these several causes is doubtless to be attributed the continued use of common smoking coal in our open fires to the present time, in the face of its great defects.

Prompted by an object of such importance as the general substitution of smokeless fuel for common coal, it occurred to me that coke, though a sluggish fuel alone, might probably be brought into a state of vivid combustion when urged by jets of gas, heating air flowing to it; and that when the coke was ignited the gas required to maintain its combustion might be very small, while the coke would give out so much larger a proportion of its caloric as radiant heat than coal does, that it was possible the cost of the coke and gas united might not exceed that of a coal fire, having equal effect.

In pursuance of the idea, jets of gas were conveyed into the bottom, and horizontally into the front, of an ordinary parlour grate, which was then filled with gas coke.† The trial was at once satisfactory. After a few readjustments of the gas jets, a result has been obtained surpassing that anticipated, and establishing the fact that, by the use of coke at 20s. per ton, and of gas at 4s. per 1000 cubic feet (the current prices of these articles), a greater heating effect may be produced than by an equal outlay on coal, while the advantages over a coal fire are as follows:—

1. There would be an end put to the smoke of towns; the atmosphere of our cities would much surpass in transparency that of continental, in which wood is generally burnt. It might almost equal in clearness that of the country, since the dust of streets is always more laid by watering than that of country roads.

2. There would be an end to the smoking of chimneys, while there is enough smell in burning coke to give notice of any chimney not drawing or left closed up. Where the chimney draws, there is no smell whatever.

3. Goods, decorations, furniture, &c., would be preserved from injury, and body and household linen would remain clean many times as long as at present. Food of all kinds, and the human body itself, would escape much contamination by dirt. Much of the time of servants expended in a vain combat with London soot would be saved.

4. No wood is required for lighting such a fire, and no laying of it, or attendance. Coke being merely placed ready in the grate, a person may, at any time, light his own fire by turning on the gas jets. So long as any gas is allowed to flow, the fire will keep alight; but it may, at will, be lowered to the smallest glow, or soon raised, by increasing the flow of gas, to a brilliancy and power surpassing that of any coal fire. There is no smutting of the bars or back of the grate. The advantages enumerated under this head alone promise a great saving of trouble to servants.

5. Not only is the expenditure of gas almost inappreciably small, after the fire is once lighted, and the consumption of coke very gradual, but a fire may be allowed to go out altogether by cutting off the gas, and may be rekindled rapidly (where the coke in the grate has been once alight) on the occupant returning to his room. In this way all useless consumption of fuel may be avoided.

6. For culinary purposes such a fire is incomparably superior to one of coal. Glowing steadily at every point of the upper surface as well as of the front, without smoke or flame, it is equal to any charcoal fire for every process in cooking. There would be an end put to the fouling of pots and kettles, and with it to the most laborious and dirty operations of the scullery. Having the fire under ready control, the cook need not keep up a large fire when it is not wanted. Directly the coke is alight, every part of the fire is in a brilliant and effective state for cooking; whereas coal has to be half burnt out before it is free from black and smoking points, and properly reddened. It is not improbable that the expense of such a kitchen fire might prove less by one-third, or even one-half, than a coal fire.

7. Chimneys would no longer require sweeping.

It will be perceived that in this plan all the elements of coal, gaseous as well as solid, are employed still; but, instead of the former being allowed to fume off wastefully from the upper surface of the coal, carrying away multitudes of its solid particles in the form of smoke, the gaseous matter is previously distilled out of the coal at the gas works, in the proper state of definite combination, known as coal gas. The separated coke and gas are then conveyed into domestic grates, but the coke is now placed above the gas; the latter, in the form of ignited jets below it and partly in front, heats

* One extensive hotel-keeper estimated the expenses laid on him by London smoke at many hundreds of pounds per annum.

† *Gas* coke answers best. Anthracite, in its native state, requires too much gas for urging its combustion.

the cold air and coke just as they meet, and thus facilitates the combustion of the coke in a manner which may be likened to the hot blast employed in smelting furnaces. As the gas from a given amount of coal is much more than sufficient to urge the combustion of its accompanying coke, a large part of the gas will be available for illuminating purposes. Moreover, the fuel needed in the distillation of the gas will be more than balanced by the gas and smoke saved, but which would have been lost were the coal burnt in its raw state.

This plan is not the subject of a patent. All gas fitters are, therefore, at liberty to apply it. But it is hoped due attention will be paid to the manner of adapting it to grates, especially as the inventor will be happy to give information freely to inquirers purposing to adopt it.

If it can be proved that a gas coke fire is actually cheaper as well as more convenient and effective than a coal one, will it not become justifiable and expedient for the Legislature to interfere and forbid, under penalty, that any smoke shall issue from any chimneys in our towns? Half a dozen trifling jets of gas issuing from an iron tube with lateral perforations, and commanded by a cock, is all that is required for a poor man's fire. The gas and coke per day need not at most exceed a penny each, and the pipes should be laid on by landlords.

With all these great advantages to recommend it, it is to be hoped that in time all coal will be coked for gas making, or at the pit's mouth; and none be allowed to be burnt in domestic fires, in towns, in its raw state.

The use of raw food existed once. To cook it by wood was the first, and by raw coal on the domestic hearth the second, economic step in advance of that rude usage; but it has for ages been attended with foul effects. A greater step will be to deprive our fuel of its rawness before we consume it in our houses. Until this becomes general we can only be considered in a transition state of rudeness, and must endure to have our bodies and property sickened and soiled by the smoke in which we are content to dwell.*

Correspondence.

MR. LEWIS THOMPSON'S TABLE OF THE ILLUMINATING POWER OF GAS IN THE METROPOLIS.

Sir,—In presenting my final photometrical table to your readers, I beg to remark that the same kind of observations upon the gases supplied to the City of London will be continued by other, and equally impartial, hands; and "the mantle of Elijah shall descend upon Elishah," for the whole of my present highly efficient apparatus will pass into the keeping of my successor. If anything has been hitherto wanting to confirm the correctness of the principle upon which I have all along acted, it is now supplied by the last report of Dr. Letheby, who certainly, as Brother Jonathan would say, "has gone the whole hog" in support of his paymasters—though whether he has not, as in his first or 22·2 candle report, overshot the mark, I will leave posterity to find out. There is a beautiful passage in Cicero which I recommend Dr. Letheby to peruse, and with which I cannot do better than conclude my photometrical labours:—"*In scientiâ excellere pulchrum putamus; labi autem errare, nescire, decipi, et malum et turpe ducimus.*"

Daily Record of Observations upon the Illuminating Power of a Burner consuming 5 feet per hour of the Gases mentioned below, as compared with a Spermaceti Candle, burning about 120 grains per hour, but always reduced to this Gravity by Calculation.

Date.	Cannel Gas.		Mixed Gas.	Common Gas.										
	Equitable Comp.	Western Comp.	Imperial Company. Fulham.	City Company.	Equitable Company.	Commercial Company.	Independt. Comp.	London Company.	South Metropolitan Comp.	Surrey Consums. Company.	Phœnix Comp.	Imperial Company Pancras.	Central Company.	Chartered Company. Brick Lane.
November 10				14·3									13·2	12·2
11				14·4							14·		13·3	12·4
12				13·9									13·8	13·
14				15·								12·4	14·2	13·
15	28·8			13·5	14·2					13·8		12·3	13·5	12·5
16				14·1									13·7	12·9
17				15·5									13·8	12·6
18				14·									12·6	12·4
19				14·2									12·9	12·5
21	29·8			14·	14·	14·1							13·2	12·3
22		28·2		13·8									12·3	12·3
23				13·8									12·1	11·9
24				14·5					13·9		13·5		12·2	12·1
25				13·5								12·7	12·5	12·9
26				14·3			13·9						13·5	13·3
28				15·9									11·8	12·6
29				13·8						14·			12·7	12·2
30	30·2			14·	14·4			13·9					12·2	12·2
December 1				14·2									13·	12·4
2				13·5									12·2	12·3
3		27·6		14·9								13 8	12·3	12·4
5				15·									12·6	12·6
6			15·5	14·4								13·6	12·2	13·7
7				14·4									12·	13·1
8				14·2									12·8	12·1
9				14·									12·4	12·4
Average.....	29·6	27·9	15·5	14·3	14·2	14·1	13·9	13·9	13·9	13·9	13·7	13·	12·8	12·5

No. 7 A, Pancras-lane, City, Dec. 9, 1853. LEWIS THOMPSON, M.R.C.S., &c., Consulting Chemist.

RIVAL SCHOOLS OF GAS MANUFACTURERS.

Sir,—In your article bearing the title of "The Rival Schools of Gas Manufacturers," in the Journal for this month, I much regret you have given us a display of more wit than wisdom.

My letter inserted in the previous Journal merely conveyed to you my disapprobation of the *manner* of opening a public, and what appeared to me, an important question. With party strifes and quarrels I have nothing to do, so long as they are confined to the parties concerned; but I consider it a violation of justice when a widely circulated scientific journal is made the stalking-horse of flaming attacks against *men* instead of *principles;* and I can only entertain a feeling of regret that a gentleman so highly esteemed as the Editor of the Journal of Gas Lighting should so far be swayed by the impulse of feeling as to render its pages a vehicle of personal abuse.

I am not quite a stranger to the laws of heat; and the principle you have brought forward as developed by the investigations of Dr. Black, that the absorption of heat in the conversion of a solid into a liquid, and a liquid into the gaseous form, without an elevation of temperature below their distilling points, are the strongest reasons that can be urged against the adoption of low heats. That the temperature required is in proportion to the per centage of volatile matter in the coal operated upon, and the duration of the distillatory process may be laid down as a self-evident proposition. We shall, however, take the coal in the lowest of Mr. Lewis Thompson's tables as quoted, which gives an average of 29 per cent.; this does not require the temperature of such a coal as that of Boghead, nor anything like it, but yet cannot be successfully wrought upon the low-heat system, as I understand that term (a somewhat indefinite one); for the transmission of heat through a mass of caking coal proceeds more slowly than through an equal mass of cannel; hence the products eliminated at a low temperature are an excess of tar and naphtha; the crude gases consisting of carbonic acid, carburet of hydrogen, vapour of water, and free hydrogen: thus entailing a heavy and permanent loss to the manufacturer. The object of practical men is to keep down and reduce the bituminous oils as far as possible; and you, sir, will find that with a coal of the composition referred to, the minimum production of the oils, and the maximum illuminating power of the gas, take place at a

* The author of this paper will be happy to give any explanation as to the best method of directing the gas jets, so as to produce the most economical and complete effect, or give any other information which his experience in the use of his system enables him to communicate. His address is No. 37, Carlton-villas, Maida-vale, London.

temperature ranging from 700° to 750°; whether this falls within the prescribed limits of a low heat, I shall refer to your decision, and shall henceforth continue to leave you in the undisturbed possession of your own opinions. JAMES PATERSON.

Berwick, Nov. 21, 1853.

GAS FITTERS' EXHIBITION FUND, 1851.

SIR,—Permit me, as one of the four auditors of the accounts of the above fund, to furnish "A Subscriber" with the information required, and to add that the accounts have been accessible to every subscriber, and every shilling of expenditure most minutely detailed under its respective head. The following is the balance-sheet:—

Dr. 1851.				*Cr.*		
Metropolitan gas companies	£355	0	0	Salaries to lecturers, assistants, and attendants during exhibition	£143	1	0
Provincial ditto	114	6	0	Stationery and printing	49	17	6½
Gas engineers and fitters	51	11	0	Advertising, &c.	84	6	1
Coal owners	27	17	0	Fitting exhibition-room and apparatus	131	1	9½
Sundry subscribers	41	17	0	Charges and sundry expenses	76	16	11
Sale of stock after exhibition	30	7	6	Expenses of lectures at metropolitan literary institutions after exhibition	29	0	8
				Balance in hand	105	14	6
	£620	18	6		£620	18	6

It is proposed that the above balance be appropriated for the publication of an Essay on Lighting and Heating by Gas.

London, Dec. 1, 1853. ANOTHER SUBSCRIBER.

MR. DAKIN'S MISREPRESENTATIONS.

SIR,—I trust you will permit me to occupy a corner in one of your columns for the purpose of counteracting and denying an insinuation made in my hearing by Mr. Dakin at the last meeting of the Great Central Gas Consumers' Company, which is correctly reported in your last JOURNAL, and which I regret to find has been the cause of considerable annoyance to an innocent person. Mr. Dakin asserted that he had no doubt the writer of the letter I addressed to him on Oct. 27 last, relating to the affairs of the company over which he presides, was Mr. George Lowe, the respected engineer of the Chartered Gas Company. Had I been allowed by the clamorous, I should have contradicted the assertion at the meeting; but, having been refused a hearing, I beg most distinctly and emphatically to state that I have had no communication whatever with Mr. Lowe, either directly or indirectly, for many months preceding the meeting (nor have I since), and he, consequently, had no hand or share in the writing or diction of the letter in question, the entire responsibility of which rests with me—therefore on me let Dakin's anger fall. I stand upon my letter, every assertion in which I am prepared to substantiate, and am, in my gas statistics, after more than thirty years' experience, "firm as the beaten anvil to the stroke." WILLIAM PEARSE.

239, *Tottenham-court-road, Dec.* 7, 1853.

Register of New Patents.

JOHN THOMAS, of Caen, in the empire of France, gas engineer, for "*Improvements in apparatus for the manufacture of gas and coke.*" Patent dated April 5, 1853.

This invention consists of a new method of fixing, or erecting, and working retorts for the destruction, distillation of coal, and other substances, used for the production of illuminating gas and coke. The retorts may be composed of clay or iron, or of clay and iron combined; and they may be of any number, and of any shape, form, or length, that may be most convenient. In the method adopted by the inventor the retorts are arranged in a vertical position in three benches, each bench made up of twelve retorts, in two rows of six. The furnaces are placed at the bottom of the retorts, and extend throughout the whole width of the benches, so as to ensure a good and regular heating. As a more economical arrangement, the two external benches of retorts are provided with a furnace to each, and the bench between them is without a furnace, being heated by the spare heat from the bench on either side of it, so that the bed of these settings is composed of a bench with a furnace, and one without, alternately. These retorts are charged at the top by means of hoppers placed above them, the coals being run into them down a shoot, and they are discharged at the bottom—the coke being guided into the barrow or other receptacle by means of a screen, which, at the same time, frees it from dust. The retorts may be divided perpendicularly by a diaphragm of perforated sheet iron, and charged on each side alternately, when caking coal is used; but the inventor prefers employing a perforated sheet, or tube, or pipe, fixed in the centre of the retort, so as to leave an annular space to be occupied by the coal. The gas will readily escape into the perforated pipe, whilst the slight pressure to which the coke is subjected will produce an article much more dense and, consequently, more valuable than that produced by any of the methods at present in use.

In charging the retorts, the inventor removes and replaces the top lids by means of an iron crowbar, which is inserted into a loop on the top of each of the lids, the bar being first passed through the ring of a chain which is suspended from the roof of the retort-house, and thus serves as a fulcrum to the bar, by means of which the lids are removed and replaced as required. The bottom lid is secured at one side by a hook, which hooks into a staple or eye on the side of the mouthpiece, and on the other side it is temporarily supported by a catch.

The inventor claims—

1. The setting of retorts employed in the manufacture of gas and coke in a perpendicular, or nearly perpendicular, position, with a mouthpiece, a door at top and bottom, and the furnace or fire employed for heating the same so situated that the retorts form the two sides of the furnace.

2. The employment in retorts for the manufacture of gas and coke of a perforated diaphragm, or a perforated pipe, for the purpose described.

3. The arrangement of retorts employed in the manufacture of gas and coke in such manner that every alternate bench of such retorts shall be heated by the spare heat from the next adjoining benches of retorts on each side, as described.

WILLIAM WALKER STEPHENS, of Edinburgh, in the county of Edinburgh, Scotland, for, "*The application of retorts in gas ovens or other ovens, constructed as retorts, to the process of improving iron, and converting iron into steel.*" Patent dated April 13, 1853.

This invention, the patentee states in his declaration, is a considerable improvement upon the present method of converting iron into steel, as respects the time necessary for the process. The iron being put into and taken out of the retorts or ovens while they are at a high heat, all the time (averaging many days) which is taken up by the present lengthy process of gradually heating and of gradually cooling the metal is saved; while the patentee's new method has this further advantage—that, the retorts or ovens being more conveniently available for chemical operations than the present cumbersome structures, the iron can be subjected to a nicer chemical action; and there is thus great facility in treating the metal in the different stages of the process, so as to convert it either partially or wholly into steel, according to the precise quality of manufacture desired. In the case of gas retorts, or gas ovens constructed as retorts, it is intended to use such retorts as are at the time unemployed in the making of gas, thus employing, to purposes of great public utility, machinery that would otherwise be quite unproductive.

JEAN MARIE SOUCHON, of Paris, in France, chemist, for "*Improvements in the manufacture and purification of gas for illumination, and certain products therefrom, and in apparatus for that purpose.*" Patent dated April 16, 1853.

The invention consists in a variety of mechanical arrangements for the purification of coal gas, and the production of cyanides from coal.

The patentee lays claim to—

1. The mode or methods, as described in the specification, of increasing the quantity of gas, and obtaining cyanides by passing the products of the distillation of coal, or other suitable substances, through a heated retort, containing alkali or alkaline salts.

2. The mode or modes described of obtaining illuminating gas and cyanides by injecting a mixture of tar and ammoniacal liquor into a heated retort, and conveying the vapours or gas so produced through a heated retort, containing alkali, or alkaline salts.

3. The mode or modes described of purifying gas for illumination, by passing it through a series of revolving purifiers, containing purifying liquids, and pieces of wood or other solid matters, which are continually becoming wetted with the solution, and exposed to the gas; and also the construction of such revolving purifiers, and their adaptation for exposing a great extent of wet surface to the action of gas.

4. The construction of the doors of retorts with catches for fixing them, and hinges with elongated holes or joints for supporting them.

OLIVER P. DRAKE, of Massachusetts, in the United States of America, for "*A new and improved apparatus for vapourising benzole, or other suitable volatile hydro-carbon, and mixing it with atmospheric air, so that the mixture may be burned for the purpose of illumination or otherwise.*" Patent dated April 29, 1853.

The invention consists in the combination of a heater and gasburner, with a water vessel and vapourising chamber, so that by means of the heater and gasburner, and the pipes connecting them with the vessel and chamber, the whole or a part of the mixture of air and benzole, or hydro-carbon vapour, produced by the apparatus, may not only be used in any convenient place for the purpose of illumination, but also for heating the water in the water vessel. The patentee also employs, in combination, a closed vapourising chamber, a rotary vapouriser or disseminator, and a rotary meter wheel and its closed case, used as an air-forcing apparatus, to force a stream of air into and through the vapouriser, and against portions of it saturated with the volatile hydro-carbon or benzole—the object being to vapourise the benzole or hydro-carbon and mix it with air. In combination with these he uses a coiled induction air pipe, which passes through the water in the vessel, and thereby receives heat from it so as to warm the air as it passes through the pipe, with a view of facilitating the evaporation of the benzole or hydro-carbon. A small chamber, and a regulator slide and orifice, in connection with the induction air pipe, regulates the temperature of the air passing to the meter wheel, or admits cool air. The disseminator is composed of two perforated heads or discs, a hollow perforated shaft, and absorbent strands; and as an air-blast apparatus he uses, in a novel manner, the meter wheel, its case, and liquid.

The inventor claims—

The combination of the heater and gasburners with the water vessel and vapourising chamber, so that by means of the said heater, gasburner, and vapourising chamber, and the pipes connecting them with the water vessel and the chamber, the whole or part of the mixture of air and benzole vapour, produced by the apparatus, may not only be used in any convenient place for the purpose of illumination, but also for heating the water of the water vessel.

The inventor admits that for the purpose of evaporating saccharine fluids, a hollow shaft surrounded by plates, and having perforations, has been made to revolve over an open cistern containing the saccharine liquor, while air has been blown into such shaft, and put in revolution. He does not lay any claim, therefore, to that invention;

but what he claims as of his invention, and as for the purpose of vapourising benzole, &c., and mixing it with air, is the combination of the closed vapourising chamber, the rotary vapouriser or disseminator placed thereon, and the rotary meter wheel and its closed case—or an air-forcing apparatus—to force a stream of air into the hollow shaft of the vapouriser, and through or against the saturated portions of the disseminator, and into the vapourising chamber or generator, so as to vapourise the benzole or hydro-carbon, and mix it with the air.

He claims also the employment, in combination with the rotating meter wheel and its case, and the hot water vessel, the coiled induction air pipe, which is made to pass through the water in the vessel, and thereby receive heat therefrom, so as to warm the air as it passes through the pipe, and for the purpose of facilitating the evaporation of the benzole.

In combination with the induction air pipe, he claims the chamber and its regulator slide and orifice, applied for the purpose of supplying cold air to the warmed air, or to the meter wheel, in order to diminish or regulate the temperature of the air passing into a meter wheel, and forced into the vapourising chamber.

He claims also the peculiar mode of making the rotary disseminator or vapouriser, viz., of two perforated heads or discs, a hollow perforated shaft, and strands of lamp wicking, or other absorbent material, stretched from one head to the other.

Lastly, he claims the application and use, for the purpose of an air-blast apparatus, of the meter wheel, its closed case, and liquid therein; disclaiming, however, the method of using the meter for the admeasurement of gas, and wherein the meter is turned by the gas itself; but claiming it as having its whole operated upon by a separate power, and as applied, in conjunction with the water and closed case, and induction and eduction pipes, for the purpose of blowing air, as specified.

William Boggett, of St. Martin's-lane, in the City of Westminster, gentleman, and George Brooks Pettit, of Lisle-street, also in the City of Westminster, gas engineer, for "*Improvements in apparatus for heating by gas.*" Patent dated May 7, 1853.

The object of the invention is the construction of apparatus for burning gas in combination with atmospheric air in a more efficacious manner than heretofore. The shape adopted by the inventors is cylindrical, and in place of one cylinder, as formerly, they use several, arranged concentrically. The apparatus is covered on the top with fine wire gauze or perforated metal in the usual manner for burning air and gas. The cylinder, which may be made of metal, earthenware, or other suitable material, and of any required size, is open at the bottom with indentations for the admission of air. The gas pipe terminates in the shallow chamber; and with a small supply, the gas burns in the top of that chamber only; on a further increase, however, it flows into the next, and so on to the others in succession. The escape of gas is prevented, as an immense quantity must be consumed before the outer cylinder becomes overcharged; for the heat generated at the top of the shallow chambers creates a powerful draught in the deeper ones, causing the combustion to be more complete, and consuming a much greater quantity of gas than could be effected in a single cylinder of equal dimensions. An advantage connected with this method of construction is, that the apparatus may be reduced to about one-third the usual height.

This arrangement, greatly as it facilitates the combustion of gas, may be still further improved by throwing an additional supply of air from below into the midst of the flame, by means of an apparatus consisting of several concentric annular air tubes, open at top and bottom, and surrounded by an outer cylinder. The air tubes have lateral tubes passing through them, through which the gas flows, thus forming chambers of unequal depth as in the former arrangement; and the top is covered with wire gauze, the supply of air being kept up through the indentations at the bottom of the cylinder.

Another arrangement consists of a bottom frame, having rectangular-shaped sockets projecting upwards, upon which flat tubes of different lengths are tightly fitted, the tubes being covered with wire gauze. By these means the supply of air feeds the flame through the intermediate spaces.

Another apparatus invented by the patentees is similar in construction to the first one, with the addition of four external chambers communicating with the inner ones. The outer chambers, being deeper than the others, serve as reservoirs of any excess in the supply of gas.

In another arrangement the centre chamber is perforated with slots communicating with the upper part of the radial chambers, and the latter being divided by partitions into chambers of different depths, the inner ones being the shallowest. An outer cylinder, reaching half-way down the apparatus, causes a strong current of air to rush up the openings.

Any unlimited quantity of gas can be burnt on the same principle as that of the first arrangement, by an apparatus in which the gas is first admitted into the shallow chamber, at the front of a rectangular-shaped burner, from which it flows into the other as before described.

Burners constructed on this principle admit of great diversity in their configuration and other details; and the inventors reserve the right of varying those they describe at pleasure, so long as the chief, feature of their invention is adhered to.

The inventors claim—

The construction of burners for air and gas, having chambers of unequal depth so arranged that the gas shall flow from a shallow chamber into those adjoining in the manner described.

William John Warner, of King-street, Soho, in the county of Middlesex, for "*Improvements in dry gas meters.*" Patent dated May 14, 1853.

The improvements which the inventor claims are for the purpose of obtaining a more accurate machine for the measurement of gas than hitherto made. The principles upon which his apparatus is constructed are—First, by so forming all parts which may be deemed necessary that they will not be affected by different temperatures; and, secondly, by actuating the valve covers in a more determinate manner than hitherto, and in such a way that any deposit the gas may make in its passage through them is less liable to cause the covers to rise, and thus make them unsound.

The inventor claims—

1. The application of two flexible diaphragms on a cylinder, together with a partition and flange, and the forming of four chambers by soldering the whole into the case at the flange.

2. The application of universal joints to meters for converting the vertical rotary motion of the cranks into a reciprocating one for the slide-valve covers. Rods connected with, and receiving motion from, the diaphragms, pass through the stuffing boxes; and the motion thus obtained is transmitted, through arms and connecting links, to a regulating crank, and right-angle valve cranks. This rotary motion is converted into an oscillating or reciprocating one for the valve covers by means of arms, universal joints, and connecting arms, fastened to horizontal shafts, which pass through stuffing boxes, and work on pivots. These arms are attached to shafts, and give motion to the valve covers by means of pins. The machinery in the upper chamber is protected from the action of the gas by its being confined to the valve box. The two diaphragms move parallel, and pass through their places of connection, communicating their motion to the machinery in the upper chamber. The valves are so arranged that each diaphragm chamber is successively filled with gas; and, as the cubical contents of each chamber are known, the gas is thus measured, and then discharged from the chambers in the order in which they were filled. A rotary motion of the crank, being obtained from the diaphragm, is communicated to the index by a worm, wheel, shaft, and pinion; and the number of revolutions is thus recorded, and an account taken of the space passed through by the diaphragms.

3. The moving of slide-valve covers by segments of four wheels, geared into racks at the base of the cover.

4. The making regulating cranks or tangent screws, and other parts, compensating by forming them of proportionate lengths of two metals, which expand unequally—such as brass and iron—in order that the several parts may work correctly, notwithstanding that they may be subjected to varying temperatures. The length of the brass he computes to be 6 or 60, and that of the iron 10 or 100; the exact proportions are 61 brass to 100 iron, but these must be corrected by experiment.

5. The actuating of the slide-valve covers of dry gas meters by horizontal cranks, geared to the shaft of the regulating crank by bevil wheels, and attached to the valve covers by connecting rods, working on pins at the base of each cover, the pins being placed as near the centre of the side as possible. The shaft of the crank passes through the stuffing box to confine the gas to the valve box.

John Barsham, of Kingston-upon-Thames, in the county of Surrey, for "*Improvements in charring peat and other vegetable substances, and in burning lime.*" Patent dated May 18, 1853.

By this invention the kiln or apparatus in which peat or vegetable matters are charred, and lime burnt, is constructed double, so as to contain water all round the charring chamber. By this arrangement the matters under process, treated by a fire below, are surrounded by water, and the heat generated by the process is used in producing steam from the water. The charring chamber is charged from an opening above; and its bottom is slanting in shape, to facilitate the discharge of the charred material. A pipe near the charging place admits of the passage of the vapours from the charring chamber, to which the heat is communicated by the water surrounding it. The charred matters may be from time to time drawn into close reservoirs, or they can be put out when red hot, by a pipe attached to the apparatus for that purpose, and also to allow the escape of the steam.

The patentee makes no claim to the parts separately, nor does he confine himself to details; but he claims the construction of kilns or apparatus in which peat or vegetable matters are charred, and lime burnt, double, to contain water, as herein described.

Samuel Wright, of 24, Church-street, Shoreditch, in the county of Middlesex, for "*Making a gas, steam, air, or liquid safety tap.* Patent dated May 19, 1853.

The principle of this invention is a lever action, by which, aided by several mechanical contrivances, the valve or plug of the tap is made to open against the pressure of the fluid to be discharged. The tap can be applied as self-acting.

The patentee claims—

The construction of taps or valves which open against the pressure of the fluid to be discharged, actuated and arranged as described in the specifications.

Thomas Isaac Dimsdale, Esq., of Kingstown, near Dublin, in the kingdom of Ireland, "*For improvements in disinfecting sewage or other fetid matters, and in absorbing noxious exhalations.*" Patent dated May 20, 1853.

This invention consists in the employment of a peculiar kind of peat or peat earth, containing salts of iron or oxide of iron. This material is used either alone or mixed with hydrate of lime, or other alkaline or earthy matter. This mixture, or the peat alone, is reduced to a granular powder before it is used; and when the impure gases exhaled from sewers, graveyards, burial-grounds, or putrifying animal or vegetable substances, are passed through this prepared peat, all the ammonia and sulphuretted hydrogen will be absorbed by the peat, and decomposed. For deodorising sewage, or other fetid solid or liquid matters, the patentee mixes the powdered peat alone, or in combination with the other matters as above mentioned, and the noxious or unpleasant odours will be absorbed thereby; or in places where gaseous exhalations arising from sewage or putrifying animal or vegetable substances exist, these noxious gases may be absorbed by merely spreading out a layer of the disinfecting material.

Peat, or bog earth, both in its natural state or simply dried in the open air, as it is prepared for fuel, or when reduced to charcoal by burning, is well known to possess the property of absorbing certain

effluvia which are generated during the decomposition of animal or vegetable matters. The knowledge that it contains these properties has led to its being very generally and extensively employed in its raw state, or air-dried peat combined with ashes and peat charcoal, to mix with manure for the purpose of fixing the ammonia and other volatile gases which are evolved from them. The result of some elaborate experiments, published in 1850 by Professor Davy and his son in Dublin, proves that the disinfecting property of peat and peat charcoal, is highly attributable to the presence of creosote in both these substances. Common peat has also been employed in Limerick, in the works of the Hibernian Gas Company, for the purification of coal gas manufactured for illuminating purposes, and it was found to answer the purpose. It is also well known that the power of absorbing certain gases exists to a greater or less degree in some earthy matters, especially in those of an alkaline character, when calcined or torrefied, and also in ashes, and in every kind of charcoal, whether animal, vegetable, or mineral. Charcoal made from peat, and from any other substance, as well as simple peat, or other earthy matter, raw, or calcined, or torrefied, by being slightly heated, parts again freely with the ammonia taken up.

The inventor claims—

1. The deodorisation and disinfecting of solid or fluid sewage matter, and of other vegetable substances, and the foul gases emanating from the same, or from burial-places, by the use of peat, or peat earth, containing naturally a salt or oxide of iron, and brought into a state of pulversation—whether such peat or peat earth be used alone, or mixed with chalk, marl, lime, or fuller's earth, or with coprolite or common earths, raw or baked, common salt, breeze or coal ashes, or peat charcoal, or charcoal made from bituminous shale of any description.

2. The proportions of common peat or peat charcoal, or charcoal made from bituminous shale, or from any substances whatever, breeze or coal ashes and coprolite, by mixing, boiling, or saturating the same with a solution of a salt of iron or other metal, either artificially prepared, or as found naturally in mines, or by mixing such earthy matters with the oxides of iron or other metals for the purposes set forth.

William Chisholm, of Holloway, in the county of Middlesex, chemist, for, "*Improvements in the purification of coal gas, for the purpose of illuminating and heating, and obtaining by the ingredients used therefor, manures, salts of ammonia, and sulphur.*" Patent dated May 21, 1853.

This invention consists—First, in the purification of coal gas by peats containing substances with which they are found associated in nature, or peats to which, when deficient of such substances, they are artificially supplied; secondly, in the obtaining of salts of ammonia from peats which have been so used for the purification of gas, and from the ordinary ammoniacal liquor of gas works, by the use of similar peats; thirdly, in the production of a manure, by mixing certain substances with some of the peat so used for the purification of gas; and, fourthly, in the obtaining of sulphur as a residuum in a certain part of the process. The patentee uses a peat containing a peroxide of iron for depriving gas of its sulphuretted hydrogen, and another peat containing a sulphate of iron, or a sulphate of lime, for depriving gas of its ammonia.

The inventor claims the use of any of the substances, fluids, or other matters described in the specification, employed separately, and not in combination, for the purposes of his invention.

John Henry Johnson, of 47, Lincoln's-inn-fields, in the county of Middlesex, and Glasgow, North Britain, gentleman, for "*Improvements in the construction of pipe and other junctions.*" (A communication.) Patent dated May 23, 1853.

This invention relates to an improved mode of forming the junction of pipes, cylinder covers, steam chests, &c.; and it consists in forming a conical groove or recess in the flanges of the parts to be joined, such grooves corresponding exactly with each other. In these grooves is fitted loosely a slightly conical ring, or packing piece of any suitable metal, and when the flanges are bolted tightly together, they squeeze the packing piece into the conical grooves, and cause it to assume the exact shape of the grooves themselves. The grooves may be either made in the flanges of the pipes, or, if necessary, they may be made in separate loose rings or flanges on the ends of the pipes to be joined. In place of a detached conical ring, or packing piece as described, a junction may be effected by forming such packing piece in one piece with one of the flanges—the corresponding flange being grooved, or recessed, to receive it. In bolting up, the effect will be the same as before described.

The patentee claims as novel and original—

1. The general arrangement and construction of joints, as described.

2. The application and use of a conical packing ring of soft metal, as described.

Legal Intelligence.

COURT OF CRIMINAL APPEAL.—June 4, 1853.

(Before Lord Chief Justice Campbell, Barons Parke and Martin, and Justices Maule and Talfourd.)

LARCENY OF GAS—ASPORTATION.—THE QUEEN *v.* WHITE.

(From the *Law Journal.*)

The prisoner was indicted for stealing 5000 cubic feet of gas. The gas company had contracted to supply him with gas to be paid for by meter. The gas was received from the company's main into an entrance pipe belonging to the prisoner, and passed through the meter which the prisoner had hired of the company into another pipe, the property of the prisoner, called the exit pipe, which fed the burners. The prisoner fraudulently, by fixing a pipe connecting the entrance and exit pipes, made a passage through which the gas rose to the burners without passing through the meter, which, consequently, did not show all the gas consumed. The jury found that the prisoner had not, by contract, any interest in or control over the gas until it passed the meter:—Held, that the prisoner, by opening the stopcock of the connecting pipe, and letting the gas pass out of the entrance pipe into it, sufficiently severed a portion of the gas to constitute an asportation, and that he was guilty of larceny of the gas.

This case was stated by the Recorder of Berwick-upon-Tweed. The prisoner was indicted, at the last quarter sessions for Berwick-upon-Tweed, for stealing 5000 cubic feet of carburetted hydrogen gas, of the goods, chattels, and property of Robert Oswald and others. Mr. Oswald was a partner in the Berwick Gas Company, and the prisoner, a householder in Berwick, had contracted with the company for the supply of his house with gas, to be paid for by meter. The meter, which was hired by the prisoner of the company, was connected with an entrance pipe through which it received the gas from the company's main in the street, and an exit pipe through which the gas was conveyed to the burners. The prisoner had the control of the stopcock at the meter by which the gas was admitted into it through the entrance pipe. He only paid the company, and had only to pay, for such quantity of gas as appeared by the index of the meter to have passed through it. The entrance and exit pipes were the property of the prisoner. The prisoner, to avoid paying for the full quantity of gas consumed, without the consent or knowledge of the company, had caused to be inserted a connecting pipe with a stopcock upon it into the entrance and exit pipes, extending between them. The entrance pipe being charged with the gas of the company, he shut the stopcock at the meter, so that the gas could not pass into it, and opened the stopcock in the connecting pipe, when a portion of gas ascended through the connecting pipe into the exit pipe, and from thence to the burners, and was consumed there, and the gas continued so to ascend and be consumed until, by shutting the stopcock in the connecting pipe, the supply was cut off. This operation was proved to have taken place at the time specified by the prosecutor. It was contended, for the prisoner, that the entrance pipe into which the gas passed from the main being the property of the prisoner, he was in lawful possession of the gas by the consent of the company, so soon as it had been let into the entrance pipe out of their main, and that his diverting the gas in its course to the meter was not an act of larceny. I told the jury that if they were of opinion, on the evidence, that the entrance pipe was used by the company for the conveyance of their gas by the permission of the prisoner, but that he had not by any contract any interest in the gas, or right of control over it, until it passed the meter, his property in the pipe was no answer to the charge, and that there was nothing in the nature of gas to prevent it being the subject of larceny; and that the stopcock on the connecting pipe being opened by the prisoner, and a portion of the gas being propelled through it by the necessary action of the atmosphere, and consumed at the burners, there was a sufficient severance of that portion from the volume of gas in the entrance pipe to constitute an *asportavit* by the prisoner; and that, if the gas was so abstracted with a fraudulent intent, he was guilty of larceny. The jury answered the questions put to them in the affirmative, and found the prisoner guilty. I postponed judgment, taking recognizance of bail according to the statute for the appearance of the prisoner at the next sessions to receive judgment, if this court should be of opinion that he was rightly convicted.

Mr. Ballantine (for the prisoner): The conviction is wrong: there was no larceny of the gas. The company delivered the gas to the prisoner from their own main into his entrance pipe, with liberty to him to burn as much as he pleased, and he was to account and pay for the amount taken and burnt. The prisoner, no doubt, was guilty of a fraud in cheating the company by preventing the gas passing through the meter, but there was no fraud in obtaining the gas. To constitute a larceny there must be a taking *animo furandi*, either actual or constructive, against the owner's will. But every atom of gas that went into the prisoner's possession went there by permission of the owners. There is no larceny if the property of goods is obtained even by fraud from the true owner. The offence is only obtaining goods by false pretences. Had the prisoner damaged the balance or machinery of the meter, the same result would have been obtained, but then clearly there would have been no larceny. The provision in the Gas Works Clauses Act, 1847, the 10 & 11 Vict., c. 15, s. 18, imposing a penalty for such a fraud as this committed by the prisoner, is an argument that it is not a larceny.

Mr. Justice Maule: Suppose the prisoner had altered the figures or damaged the machinery of the meter, so that it did not account truly and only showed half the quantity of gas that really passed, that would not have been a larceny, and yet within this provision of the statute. The statute probably was passed to provide against such frauds.

Mr. Ballantine: An evasion of the meter is no more a larceny than an alteration of it would have been.

Lord Chief Justice Campbell: I am of opinion that this conviction ought to be affirmed, and that the direction of the learned Recorder was most precise and entirely according to law. There may be a larceny of gas just as much as of wine or oil. The only question is, whether there was a felonious asportation. On the facts stated in the case I think there can be no doubt upon that point. The result of them is, that the gas was in a vessel which was the property of the prisoner, but which was in the possession of the company, and that, while the gas was their property and in their possession, the prisoner carried it away *animo furandi*, and applied it to his own use. The evidence, therefore, supported the conviction. The fact of the entrance pipe being the property of the prisoner affords no answer to the charge. With regard to the act of Parliament, the 10 and 11 Vict., c. 15, my Brother Maule has shown what probably may have been the object of the Legislature in imposing the penalties referred to; but, however that may be, the circumstance of the Legislature having added additional penalties for the offence, cannot reduce it to a lower grade.

The rest of the Court concurred.—Conviction affirmed.

COURT OF QUEEN'S BENCH.—Nov. 17, 1853.

(Before Lord Chief Justice CAMPBELL, and Justices WIGHTMAN, COLERIDGE, and ERLE.)

THE SHEFFIELD GAS CONSUMERS' COMPANY—REGINA *v.* MITCHELL AND OTHERS.

Sir F. THESIGER and Mr. R. HALL were for the prosecution; and Sir F. KELLY, Mr. PASHLEY, Q.C., and Mr. HARDY, for the defendants.

Sir F. THESIGER said this case stood this morning by appointment for the judgment of the court.

Mr. Justice ERLE read Mr. Justice Cresswell's notes of the trial before him at York on the 15th of March last.

Lord CAMPBELL: Then the defendants made a motion in this court for a new trial, and a rule *nisi* was granted, which on argument was discharged. Are there any affidavits on either side?

Sir F. KELLY: There are affidavits on behalf of the defendants, my lord, which the officer of the court will, I presume, now read.

The officer then commenced reading a joint affidavit of Robert Mitchell, John Wilson, and Bernard Seale, three of the defendants, and who were three of the directors of the Sheffield Gas Consumers' Company, stating the incorporation of that company under the Joint-Stock Companies' Act, and alleging at length that it had its origin in the public feeling and public necessity for a better and cheaper supply of gas, and in consequence of several oppressive acts and regulations of the old gas company, which old company were the real prosecutors of this indictment. The affidavit then proceeded to give a history of the gas contest, beginning with the establishment of the first gas company in Sheffield.

Lord CAMPBELL: Surely it is not necessary for the history of all these proceedings to be brought before us.

Sir F. KELLY: Well, my lord, the result of all the affidavits is to show that the defendants have not wilfully violated the law, but that, believing there was a necessity for a new gas company, they have *bona fide* carried on their proceedings for its establishment.

Sir F. THESIGER: So far as the *bona fides* is concerned I shall show, on the contrary, that against all warning they have gone on and persisted in breaking up the streets.

Lord CAMPBELL: Have they done anything since the judgment of this court?

Sir F. THESIGER: Even since your lordship's judgment they have gone on with their works and broken up the streets, and even so late as October or November last the directors of the company have been convicted by the magistrates for breaking up the streets. I may, perhaps, save a great deal of trouble, my lord, by mentioning a somewhat similar case, and perhaps the court would be inclined in this case to adopt a course similar to that which was then pursued. That was the case of Regina *v.* Scott and others, directors of the Manchester and Yorkshire Railway Company, and the defendants came up for judgment in Michaelmas term, 1843, a motion having previously been made and granted that they might do so by attorney. The indictment was for erecting certain buildings. The court imposed a fine of £5000, but all process to be respited until the Easter term following. At that time the buildings had been entirely removed to the satisfaction of the prosecutor, and the court therefore respited process altogether.

Sir F. KELLY: It will appear, my lords, when the whole matter is before the court, that these defendants have implicitly submitted to the judgment of the court, and have only since that time done what is necessary to prevent a nuisance by the escape of gas.

Lord CAMPBELL: Such parts of the affidavits as you desire must be read then.

The officer then read the affidavit, which was a very long one, stating the chief proceedings which have taken place in reference to the new company, with all of which our readers are already quite familiar, and which have all appeared in our columns more than once in the course of the litigation. There were also affidavits of William Harvey, George Flintoff, and Anthony C. Branson. It only need further be mentioned, in reference to the affidavits, that they stated that the streets had never been opened by the defendants or the new company since the judgment of this court, except in order to remedy escapes of gas, and with one other exception—namely, that Messrs. A. C. Branson and Henry Vickers, "without the authority of the said company, or any of the directors thereof, and without the knowledge of the defendants or either of them," applied to the board of highways, and requested them to open the ground in Bank-street, which they did, in order to ascertain whether certain evidence given on the trial at York of an action of ejectment by William Wake against the new company was correct. It was also stated that Mr. Norton, of the firm of Messrs. Norton, Symons, and Ward, caused a service-pipe to be laid down on his own responsibility.

The affidavits in aggravation were then read. William Wake, solicitor to the United Gas Company, made a long affidavit, stating most of the facts of the case. He referred to the placard (a copy of which was annexed to his affidavit) headed "Cheap Gas."

Sir F. KELLY objected to the admissibility of such a bill. It purported to be—probably was—published in 1851, by a company that had been a good deal referred to; but they were acquitted at the trial, and nothing was shown to connect the defendants with the company at that time.

Sir F. THESIGER contended it was clearly admissible—that the whole question was about the proceedings of the company, and that it was by arrangement, acceded to on both sides, that the verdict of guilty was taken against the present defendants only.

Lord CAMPBELL to Sir F. Kelly: We have had statements on behalf of the defendants as to all sorts of things done by persons in Sheffield, and I think we must hear what the company has done.

The placard published by the new company, in reply to the Attorney-General's opinion that the boards of surveyors had no power to authorise the breaking up the streets, was also referred to, and the reading of part of it created a little laughter.

There were affidavits also by John Rigby, Edwin Unwin, George Eyre, John Chambers, George H. Woolley, Henry Hind, and Charles Easom. The affidavits, besides showing the general proceedings of the new company previous to the trial at York, stated that, notwithstanding the verdict against the defendants, the company had not abstained from breaking up the streets, but continued their operations, as usual, up to the time the rule for a new trial was refused in this court, and that since that time the streets had been broken up sometimes.

Sir F. KELLY: Now that it is to be hoped that we are approaching the last campaign of this

"Bellum plus quam civile,"

I shall endeavour to be as brief as possible in what I have to address to the court in behalf of these defendants. But, as I observe that in the affidavit of Wm. Wake, I believe, there are some general allegations that the defendants have continued to lay down their pipes since the judgment of the court, it is necessary for me to make a few remarks. But, if I understand from my learned friend that these general allegations refer only to those occasions mentioned in the affidavits on behalf of the defendants—namely, the repairing the pipes in consequence of escapes of gas, and the opening the ground arising from the action of ejectment—then I shall have very little to address to the court. I trust my learned friend's usual candour will excuse my thus appealing to him; but, if I understand that the general allegations refer to those occasions only, I shall be content to leave the matter in the hands of court, after very briefly commenting on the case.

Lord CAMPBELL: I do not think your affidavits state that the company had ceased to lay their service pipes.

Sir F. KELLY: Flintoff's affidavit, if I remember rightly, stated that, from the time of the judgment pronounced by this court, nothing whatever has been done by the company in laying pipes.

Mr. Justice WIGHTMAN: Here is the passage, I suppose, you allude to. It states that numerous applications have been made for the laying down of service pipes, but that "the defendants and the directors, *generally* have refused to lay them down."

Mr. PASHLEY: My lord, the meaning is, that all the directors have refused—"the directors generally."

On his lordship looking again at the affidavit, he said it was very curious, but perhaps it was so. A comma had been inserted after the word "directors."

Sir F. KELLY referred to his inquiry, as to whether the general allegations as to *opening* the streets referred only to those occasions mentioned in the defendants' affidavits, and continued: If, on the other hand, my learned friend means to charge upon these defendants, or any other persons for whom they are responsible, anything except what I have mentioned, then, my lords, I must ask your lordships' attention to what I have to say more at large on the case.

Lord CAMPBELL: The affidavits have very fully stated all that has been done by the defendants, and all that they have not done. The case is now fully before the court.

Sir F. KELLY: Then, my lord, I must address the court on the subject generally. Now, the whole case on the trial of this indictment rested on the question whether the breaking up the streets was a nuisance. The proceedings which had previously taken place in the Court of Chancery have been referred to. I happened to be in the Court of Chancery when the then Lords Justices of appeal delivered their judgment; and though I am bound to say it appeared that Lord Justice Knight Bruce thought the breaking up the streets was an indictable nuisance, yet the then Lord Justice Lord Cranworth appeared to think that, under the circumstances, it was not so. It cannot be pretended, therefore, that at that time the question was not a very doubtful one, and that the defendants were not justified in proceeding with their works, believing as they did that they were acting legally. The motion for an interlocutory injunction having, therefore, been refused, the cause proceeded in Chancery. And I cannot help remarking here, that, although I by no means say the prosecutors are not entitled to do all they have done, still it is unquestionable that this is a prosecution which has not been instituted for the purposes of public justice, but is, in fact, merely a quarrel between two rival gas companies.

Lord CAMPBELL: What is desired on behalf of the prosecution?

Sir F. THESIGER: All that we want, my lord, is that the company should really cease their operations in breaking up the streets until they obtain the sanction of Parliament to their doing so. I mentioned, at the commencement of the case, an instance in which a course was pursued by this court that stopped the nuisance there complained of.

Lord CAMPBELL: We shall not follow the precedent of inflicting a heavy fine *nisi*. Do the prosecutors ask for punishment?

Sir F. THESIGER: I want any course to be pursued, my lord, which the court will suggest and think sufficient for the purpose I have mentioned. It may be that Parliament will think that there is no necessity for another gas company, and the prosecutors only desire that the defendants should not proceed until the decision of Parliament is given upon the matter.

Lord CAMPBELL: Will the defendants enter into their recognizances that no streets shall be broken up for the purpose of laying pipes until the consent of Parliament has been obtained?

Sir F. KELLY: Most certainly, my lord.

After a little consultation with his client, the learned counsel continued:—But there is this difficulty, which, if the court will allow my clients a little time, will, no doubt, be obviated. Though the defendants would, of course, not do anything themselves, it is possible that they might expose themselves to some risk by undertaking as to the acts of the company. If your lordships will allow a little time, until we can communicate with the company, and get a resolution of the company on the subject, I have not the slightest doubt the difficulty will be overcome. On the trial the company were acquitted, although the defendants were convicted.

Lord CAMPBELL: They must undertake for the company, if they enter into recognizances at all.

Sir F. KELLY: There is no doubt the company will pass some

resolution, when the matter is brought before them, which will in some way guarantee these defendants.

After a few minutes' consultation between the judges,

Lord CAMPBELL: I cannot understand why these defendants have not sufficient confidence in the company to enter into the recognizance suggested.

Sir F. KELLY: The solicitors in this case have just made a suggestion to me, which probably the court will think a reasonable one; they suggest that the company, as well as the defendants, should enter into a joint recognizance, and this would probably be satisfactory to all parties.

Justice COLERIDGE: Can they do so?

Sir F. KELLY: Yes, my lord, they can clearly: they are incorporated, and have a common seal.

Lord CAMPBELL: What do the defendants propose, then, should be done?

Sir F. KELLY: What I would suggest, my lord, is that the recognizance, in whatever form the court thinks necessary, should be entered into by the company under their common seal, and by these defendants. I have no doubt, my lord, that within a week I should be able to announce to the court that this is done, and then, I suppose, this matter will be entirely at an end. I merely propose this delay for the security of these defendants personally.

Lord CAMPBELL: The case had better be adjourned, then, until this day week, and then the recognizances can be entered into. I suppose the prosecutors consent to this?

Sir F. THESIGER expressed his assent.

Lord CAMPBELL: The court says, be it so.

FRIDAY, NOV. 25, 1853.

(Before Lord Chief Justice CAMPBELL, and Justices COLERIDGE and WIGHTMAN.)

Sir F. THESIGER and Mr. HALL appeared for the prosecution; for the defence, Mr. PASHLEY, Q.C., and Mr. HARDY, were in attendance at the sitting of the court; but, after waiting about two hours, Mr. Pashley was sent for from the Court of Exchequer. (The cause of this case being delayed was that, this being the last day of term, the juniors of the bar had precedence in making motions; and therefore, after one or two special matters, the Lord Chief Justice commenced going through the bar, as it is called, by calling on the "young gentlemen of the back row," as he styled them.)

On Mr. R. HALL being called on, he said he had to move, with Sir F. Thesiger, in Reg. *v.* Mitchell and others.

Sir F. THESIGER: This case, my lords, was an indictment for breaking up the streets of Sheffield, and the defendants were called up to receive judgment. If your lordships recollect, it stood adjourned until yesterday, in order that arrangements might be made for the company's entering into a recognizance. I yesterday suggested to my learned friends that the matter should stand until this morning, which was acceded to. I am not aware what the defendants propose to do.

Mr. HARDY: My lords, I am with Sir Fitzroy Kelly and Mr. Pashley for the defendants. I have not seen Sir F. Kelly this morning, but Mr. Pashley has been in court a long time this morning, and has a short time since gone into one of the other courts, and I understand is now speaking.

Sir F. THESIGER: I can wait until Mr. Pashley is sent for.

Lord CAMPBELL: The matter must be disposed of to-day; it had better go on.

Mr. HARDY: I have to inform your lordships, then, that the Sheffield Gas Consumers' Company have come to a resolution to appoint some one to affix their seal to the recognizance as suggested by the court, and the gentleman so appointed is in court with the seal of the company for that purpose.

Sir F. THESIGER: I will just mention to your lordships that in consequence of the works of the company the streets of Sheffield are now out of repair in many places, and I submit, therefore, that the company should be bound to put these into proper repair. I have also to call your lordships' attention to the fact that the defendants have, by the course they have adopted throughout, caused heavy costs to be incurred in this matter, and they have gone on against innumerable warnings.

Lord CAMPBELL: After all, it is substantially a dispute between two companies, and is hardly a case for giving costs.

Sir F. THESIGER: After that expression of the view of the court, of course I withdraw all application on that point; but I submit to your lordships that the defendants ought to repair the injuries they have done to the streets.

Lord CAMPBELL: Of course the defendants are bound to put the streets into repair wherever they have disturbed them.

Sir F. THESIGER: Your lordships are aware the defendants have laid down their pipes in many places, and there is some exactness required, therefore, in the terms of the recognizance. They propose to supply gas.

Lord CAMPBELL: All I think they ought to be allowed to do is to repair escapes of gas.

Sir F. THESIGER: But should they be allowed to supply gas where they have laid down their pipes?

Mr. Justice COLERIDGE: But why should we interfere with their supplying gas through the pipes that are laid?

Sir F. THESIGER: Only this, that they will have triumphed over the law, as it were, to that extent, as they obtain the advantage of having laid their pipes against law.

Lord CAMPBELL: We shall not interfere with that which is completed; but prevent them from opening the streets except to remedy escapes of gas; that is the meaning of the court.

Sir F. THESIGER: Is not the better way to prevent escapes, not to allow any gas to escape from their gasometer?

Lord CAMPBELL: Both parties understand the decision of the court, and the recognizance must be entered into for that purpose.

Mr. HARDY: Perhaps your lordships would allow me to mention that, as to the repair of the streets, we are bound to do so under our bond given to the surveyors of highways, and it is the duty of the surveyors to see that the streets are repaired.

Sir F. THESIGER: But there happens to be a very convenient understanding between the surveyors and the defendants, one of the former being, or having been, if I am not mistaken, the chairman of the company.

Lord CAMPBELL: Let the repair of the streets be made a part of the recognizance: the Master will settle the terms of it.

The following endorsement was then made on the brief of the learned counsel, which was handed in to the Master:—"Recognizances to be settled by the Master. The defendants and the Sheffield Gas Consumers' Company to be bound in £1000 not to break up the streets for any purpose except to prevent nuisance by the escape of gas, and to repair the streets so far as out of repair by the acts of the company and their servants." The recognizance was accordingly prepared by the Master, and the parties entered into it.

BURY ST. EDMUND'S QUARTER SESSIONS.—Oct. 24, 1853

(Before W. GURDON, Esq., Recorder.)

CHARGE OF TAMPERING WITH A GAS METER.

George Chaplin Wayling was indicted for having, on the 18th of January, 1852, feloniously stolen, taken, and consumed 5000 cubit feet of gas, of and belonging to the Bury Gas Company, against the form of the statute, &c. Two other counts also charged that, within six calendar months after the commission of the felony named in the first count, he had, in each quarter, stolen, taken, and consumed 5000 other cubic feet of gas.

Mr. WORLLEDGE and Mr. BURCHAM appeared as counsel for the prosecution, and Mr. SALMON as attorney; Mr. POWER and Mr. MILLS for the defence, and Mr. HINNELL as attorney.

The defendant pleaded "Not guilty."

Mr. WORLLEDGE said he had the honour to appear as counsel in behalf of the prosecution instituted against Mr. Wayling, the prisoner at the bar, by the gas company of this town, for stealing gas at the periods charged in the indictment. No doubt, it must be a painful thing for anybody in that court to see a person of Mr. Wayling's apparent respectability, and filling the position he did, standing at a criminal bar. No one felt this more than he (Mr. Worlledge) did; but, however painful the duty they had to perform, neither he nor the jury must shrink from the discharge of it. This was a consideration which must weigh with them all. Thank God! the law was no respecter of persons; and if an individual like Mr. Wayling—placed in a position of respectability in the town, capable of distinguishing between right and wrong, and with less temptation to commit crime than many had—were really guilty, it was all-important that he should be brought to the bar and punished; for nothing would render the lower orders more satisfied with the administration of justice than to find that the fact of a person being of a superior rank would not aid him when put upon his trial. It was painful to him, connected as he was with this town, that the duty of conducting the prosecution had fallen on him; but, as he had said, neither he nor the jury must shrink from doing their duty. He would now, as shortly as he could, detail the circumstances of this case. The gas company, as the jury were probably aware, was incorporated by act of Parliament, which received the royal assent on the 26th of June, 1849; and from that time to the present they had been the parties who had supplied all the private parties in the town who were willing to consume their gas: they also supplied the public lights of the town. All private consumers here paid according to the quantities registered by meter; and he apprehended the contract between the company and the consumers was this—that they (the consumers) should pay according to the meter, and should not tamper with it in any way to prevent its telling the truth, and rendering a correct account of the quantity consumed. He would now point out the nature of the meter, and the mode of registration. There were, as the jury would observe, three dial plates—one for the hundreds of feet consumed, one for the thousands, and one for the tens of thousands. The meter which would be produced in this case was one of Edge's patent, dated 1848. The jury would observe that the dials were capable, from the construction of the meter, of being turned both ways; and its construction was different from that of the patent meter of 1849, in which the dial plate could only turn one way. There was a spring which came down upon the cogs of the wheel; but the effect of that spring was not to prevent the reverse motion of the dial plate, but merely to regulate the motion—to make it stop, in fact, when it had gone through one revolution. He did not think it necessary to trouble the jury with the meter of 1849, but would merely tell them it was much safer in its construction.

The RECORDER asked why the attention of the jury should be called to any other meter?

Mr. POWER said, this might be an important matter. In 1849, Mr. Edge took out a patent for improvements, in consequence of his former meters not registering correctly.

Mr. WORLLEDGE said, that in the meter before the jury the dial plate would turn both ways; and this was a material matter for consideration. In the patent of 1849 it would only turn one way—the forward one. He would now put the cap on the meter. When the meter was taken away from the house Mr. Wayling occupied, the cap was off, but in the meter as it stood in Mr. Wayling's house, it was firmly soldered on. After explaining the process of registration, Mr. Worlledge observed, that in fact the meter kept a complete register, but it never registered anything under 100 feet; 80 feet might have been consumed, but the index then would make no motion at all. He would now proceed to state the mode in which the officers of the gas company were in the habit of taking the account of gas consumed. They only went once a quarter round to the meters, and had a book with them. At the commencement of a quarter they went and took the number of feet at which the meter stood; they then turned to the former quarter and saw the number at which the meter then was, which they deducted from the amount of feet now registered, and the

difference showed the consumption. He should be able to show the average consumption of burners for the winter months; 500 cubic feet per quarter for one burner would be a low average. Having made this general statement as to what he considered the contract between the company and the consumer, and also as to the mode in which the business of the company was carried on, he would now call attention to the facts of this case as they affected Mr. Wayling. In 1850 the defendant occupied a house belonging to Mr. Miller, on Angel-hill. At that time he was a customer of the company, and a consumer of their gas. In 1851, some time in November, he removed from the house of Mr. Miller into another belonging to Mr. Reed, also situate on Angel-hill. During part of that quarter, ending Dec. 31, 1851, for the space of sixteen days, he had no means of consuming gas, for his fittings were not altogether removed from one house to the other. At Mr. Reed's house he continued up to the time when he made an assignment for the benefit of his creditors, and when his property was sold off. He should tell the jury that while Mr. Wayling lived in Mr. Miller's house he had never more than five burners; when he removed into Mr. Reed's house he had eleven burners put up. Mr. Wayling was, as the jury knew, a dentist, and he rather thought that he used gas not only for the purpose of giving light, but also for the purpose of melting metals and other things which he had a necessity to use in his business. He should show, from the accounts of the company which would be produced, the consumption by Mr. Wayling during the time he occupied the two houses, as shown by the meter.

Mr. Power said, that there were in the indictment three charges against Mr. Wayling; he must ask his learned friend which count he relied upon? The same question was put in a case tried at Ipswich before the Lord Chief Justice Jervis, and he decided that counsel must elect upon which count he would proceed. He objected to his learned friend going into a history of this case, as he did not know where he would begin, or in what year. He wanted to know what the charges were which Mr. Worlledge was making against Mr. Wayling.

The Recorder thought Mr. Power was rather anticipating; he ought to allow Mr. Worlledge to open the case fairly, and then ask him within which six months he proposed the charge to be embraced.

Mr. Worlledge could assure his learned friend that if he had shown a little of the patience which he was sure the jury would exhibit in the investigation of this case, he would, by this time, have learned the course he proposed to adopt. He would state presently the period to which the attention of the jury would be confined in the investigation of this case; but he would show Mr. Wayling's consumption of gas both before and after that period, in order that the jury might compare the story which the meter told at one time with that which it told at another time. In the quarter ending Dec. 31, 1849, Mr. Wayling was living in Mr. Miller's house, on Angel-hill, and had three burners only; in that, the winter quarter, the meter registered 600 cubic feet. In the next quarter, ending March 31, 1850, there were three burners, and the meter showed 600 feet consumed. In the quarter ending June 30, 1853, with three burners, the meter showed 300 feet consumed, instead of 600 feet; but this might be accounted for by that being the summer quarter. In the quarter ending Dec. 31, 1850, there were five burners, and the jury would find that Mr. Wayling's consumption was increased to 1200 cubic feet.

The Recorder asked whether, in the quarter ending Sept. 30, 1850, there were five burners?

Mr. Worlledge replied that he had not an account of the consumption of that quarter.

Mr. Power objected to the course Mr. Worlledge was pursuing in thus stating the case. If a prosecutor charged a man with an offence in 1851, he could not show a state of things existing in 1848 or in 1852, and thereupon ask the jury to come to the inference that the party had stolen anything in the intermediate period.

Mr. Worlledge apprehended that evidence on these points was clearly admissible.

The Recorder understood Mr. Worlledge to be about to show that the quantity of gas was accounted for—first charged by the company, and then paid for by the prisoner. He could not see any possible objection to that; but how far that might be a ground of any legitimate inference might be a question.

Mr. Power said the question was whether this were preliminary or not—whether it were admissible at all.

The Recorder said it was a fact in the case.

Mr. Power would like to have the formal judgment of the court upon the point. Here was a man charged with stealing gas in 1852, and his learned friend proposed to show the consumption in another house—not where he was charged with having stolen the gas.

Mr. Mills said he was with his learned friend Mr. Power, and had had the advantage of being in the gas case at Ipswich, which was tried before the Lord Chief Justice. His friend, Mr. Worlledge, proposed to show that the meter had been tampered with, because, though the meter registered a certain quantity, yet, in reference to the previous habit and custom of the prisoner in the consumption of gas, the quantity was small, and therefore he would have the jury infer that all the gas consumed was not registered. He contended that such evidence was altogether inadmissible. Were they to say, because a man in 1848, in the March quarter, consumed a certain quantity, that therefore in the corresponding quarter of 1849 he must consume the same quantity? He contended that his friend could not show that it had been Mr. Wayling's practice to get through so many feet in a given quarter, and that in 1852 his meter only registered so much. Unless it could be shown that there was a connection of some sort or other between a man's consumption in the four years, 1848 to 1851, and his consumption in 1852, the conclusion must be come to that there was no more connection between the two things than between the Goodwin Sands and Tenterden steeple.

The Recorder could not shut out this statement, which he regarded as a material element in the case.

Mr. Worlledge said his learned friend had made two unsuccessful attempts to suppress this statement of evidence, and he would go on mentioning the state of the meters. In the quarter ending March 31, 1851, with five burners the consumption was 700 feet; in the quarter ending June 20, 1851, with five burners, 600 feet; in the quarter ending Sept. 30, 1851, with five burners, 700 feet. And now he must beg the attention of the jury most particularly to what would follow, for it was the most important part of the case, as to the quantity shown by the meter to be consumed. He had told them that in November, 1851, Mr. Wayling removed from Mr. Miller's to Mr. Reed's house. On the 27th of November, the fittings were removed to the latter house, and on the 11th of December, the service pipe was put in; so that from the 27th of November to the 11th of December, there was no power whatever for Mr. Wayling to consume gas in Mr. Reed's house. In the quarter ending Dec. 31, 1851, with five burners, and during part of the quarter with four burners only, and with no consumption at all during fourteen days, the meter registered 1600 feet as consumed. He would now come to the quarter in which he charged the offence as being committed—the quarter ending March 31, 1852. Before mentioning what the meter should have consumed during that time, he would state that on the 1st of January, or soon after that time, Mr. Wayling had six additional burners put into his house, making eleven in the whole. Now, let them see what tale the meter told during that quarter with the eleven burners. Only 500 cubic feet, which came to 3s. 4d., while in the previous quarter 1600 cubic feet had been registered, with a fortnight without consumption. The company's servants thought this odd. Their custom was to inspect the meters once a quarter, at the end of the quarter. After the 6th of April, Mr. Sowman, the chief at the gas works, sent Crick, a man at the works, to look at this meter. Sowman himself went on the 6th of April, and found the meter at 8800; on the 17th, when Crick went, it stood at 9100; therefore, in that interval of eleven days it had registered 300 cubic feet; in the quarter, however, it registered only 500 cubic feet. The jury would ask themselves whether this were not a very suspicious circumstance. How did it happen? This would be the question for them to inquire into that day. This quarter must be the one to which the attention of the jury should be particularly directed. He would add, that for the quarter ending Sept. 30, 1852, the consumption registered was 800 feet, and for the quarter ending Dec. 31, 1852, 1500 feet. Those engaged in the prosecution were not acquainted with Mr. Wayling or the people he dealt with, but they had made inquiry and found, as far as they could understand, that Mr. Oliver was the only grocer he had dealt with; and his man would prove that in that quarter no mould candles had been supplied to Mr. Wayling by Mr. Oliver, and only 6 lb. of dips.

Mr. Power objected to this sort of evidence being adduced.

The Recorder said it would only go to negative that which should properly come from the defence; for it might be a defence that Mr. Wayling illuminated the whole of his house with candles. It was not for him, but for Mr. Worlledge, to conduct the case; but this appeared matter rather irrelevant to the prosecution.

Mr. Worlledge did not want to overload his case with evidence; but he did not wish to be told that the prosecution had not exhausted every possible means of proving the charge.

The Recorder was of opinion that this should not form part of the evidence for the prosecution; but he did not say that it was not the part of those who had got up the case to see how they should be able to meet a defence on the point, if it should be set up.

Mr. Worlledge proceeded to argue that the meter, if it had been left alone, would have told a true story; for it had marked 1600 feet in the quarter before, and 300 feet in eleven days, from the 6th to the 17th of April. He thought the jury would be of opinion that the meter, if left to itself, would have told a true story, and that the company would have found a great deal more registered as consumed. He would now detail the evidence which bore against the prisoner at the bar with reference to this quarter. He would call before the jury a witness named Last, and it would be for them to draw an inference from his evidence. He would tell them that about two months previous to Christmas, 1852, he had a conversation with Wayling, in which the latter said, "I can tell you of a capital dodge I am up to with my meter, in making a hole at the top, by which I can alter the hands back"; and he understood him to say he altered it by a wire. This evidence would be corroborated by Mr. Last's son, who was also present at the time. Mr. Last certainly did not communicate this to the gas company at the time. He remonstrated with Mr. Wayling about it. He believed, however, that Mr. Last was a creditor of Mr. Wayling; and when the latter got into difficulties, and made an assignment to his creditors, Mr. Last went to him, and told him if he did not pay his debt he would tell the company. Mr. Last, in the mean time, had sent his son to look at the meter, to see if Mr. Wayling's story was true; and he would tell them that, a few days before the things were sold off, he found a hole just above the 100 index, through which hole it was perfectly easy for Mr. Wayling, with a wire, or with one of those long instruments which dentists were in the habit of using, to turn back the 100 index. A hole had been made in precisely the same place in another meter; and witnesses would be called to show that, with a wire, it was perfectly easy to turn back the index. After this, Mr. Last went and made Mr. Beard, the chairman of the company, acquainted with the circumstances; and Mr. Beard and others examined the top of the meter, which was not exactly as it was when taken from the house, for some of the varnish had been taken off in the examination. Mr. Beard and the others could not find where a hole had been, it having been stopped up. They told Mr. Last that they could not find it; on which he said that he himself could not find it, but his son could. The result was that his son pointed out the spot; and there was found the hole soldered up and varnished over, so that it could not be seen without a strict examination. But, if the jury would look at the inside, they would find a place where evidently a hole had been soldered up; and the witnesses would tell them that in no other place on the top of this meter would a gimblet make any impression at all, but at that particular spot. The

hole was just above the 100 index: through that hole it was clear the 100 index could be turned back, just at the pleasure of the party who had the control of that hole. Now, did the existence of that hole account for the meter having shown only 500 feet during the quarter ending March 31, 1852? He thought they could come to only one conclusion on that point; and that when they found that the meter did its duty before and after that quarter—when they heard the evidence of Mr. Last and his son, and saw the condition of the meter—he believed they would be of opinion that he was now giving the right and only clue to the meter charging only 500 feet during that quarter. Through the hole, it would be shown that it was perfectly easy to turn the 100 index back; and, if so, the small amount registered was perfectly accounted for, particularly after Mr. Wayling's statement to Mr. Last. He believed he had now gone pretty nearly through all the facts that would be laid before the jury; but he was told there was to be a legal difficulty in the case, and that it would be contended, however fraudulent Mr. Wayling's conduct might have been, he had not stolen any gas at all—that it was a different sort of offence, and not a felony. But he apprehended that the question for consideration was this—did Mr. Wayling make that hole at the top of the meter with the intent to defraud the company, and did he turn back the index? If so, he contended that his right and licence to take gas from the company was perfectly determined; that he had no right to take any gas at all, for he had violated his contract with the company, which was this—that he should not in any way tamper or interfere with the meter. If, after that, he turned on gas into his house, meaning not to pay for it, and availed himself of the hole to turn back the index so as not to pay, it was as much a felony as if there had been another pipe conveying the gas away from the pipes of the company.

The Recorder asked if he were to understand that there would be a larceny of all the gas consumed after the index had been tampered with?

Mr. Worlledge: Of some portion of it. Supposing Mr. Wayling had turned back the meter, when it stood at 5800, to 5200, he should not charge him with stealing the 600 feet which had been registered; but when he had turned the meter back and then went on consuming till the meter came back to where it was before, he contended that the subsequent 600 feet would be stolen, and that the *asportavit* was as clear as it could be. Supposing, for the sake of illustration, that a man had a barrel of beer for sale, and that there was a person in whom he had confidence, and that he allowed him to come and draw it out of the barrel upon condition that he should set down upon a slate kept near the quantity taken out, and the man should, one day, draw off a gallon, not setting it down, meaning not to pay for it, but to appropriate it to his own use, would not that be a felony in the eye of the law? How did that differ from Mr. Wayling's case? He had turned the meter back, so that, when the company came at the end of the quarter, it could never tell the truth, and then he again went on consuming the gas, meaning not to pay for it. He contended there was no difference whatever in the cases. He did not think it necessary to detain the jury any further except as to one point. When before the magistrates—and that was a fact in the case—Mr. Wayling called witnesses in answer to this charge. Whether, under the advice of his two learned counsel who appeared for him this day, he would see fit to call any witnesses, he knew not; if he did so, it would be for the jury to form their own conclusions whether or not their evidence was worth anything. If, however, he should choose to call those witnesses, it would be his duty to examine them, and he should also have the right to address the jury on the whole case at the close of his learned friends' evidence. He and his learned friend Mr. Burcham would endeavour to compress the evidence into as short a compass as possible. In conclusion, he would only say that it was the bounden duty of the jury to take the case into their serious consideration; and if they should think it conclusively brought home against Mr. Wayling, however painful it might be to their feelings, they must do their duty honestly and conscientiously, and return a verdict accordingly.

The Recorder asked whether, supposing the meter to have been tampered with by turning one of the hands back any number of feet, whatever gas passed through and was registered by the index after that tampering—all that was required to bring the index up to the point at which the tampering took place—was feloniously taken?

Mr. Power said that, as counsel for Mr. Wayling, it would be his duty to try to satisfy the court, as he had no doubt he should do, that there was not the slightest pretence in the world to charge Mr. Wayling with felony. His learned friend was perfectly well aware that there was an act of Parliament, the 18th of Victoria, within which this charge, supposing it a true one, entirely came—namely, the General Gas Act, c. 15, s. 18, the penalties clauses. He could only come to the conclusion that, inasmuch as the town of Ipswich had a gas case, the town of Bury was determined not to be in the shade; but there was not the slightest analogy between the two charges. In that case there was a surreptitious taking. He begged to read the remarks of Mr. Justice Maule in the case of the Queen against White. *Here Mr. Justice Maule, than whom there was not a greater authority, said, that inasmuch as the gas company voluntarily put into possession of the person they supply with gas all the gas which passes through the meter, they could not in respect of that possession so acquired charge a larceny—there was no* asportavit.

The Recorder remarked that this was an extra-judicial remark.

Mr. Power admitted that it was so; but it was well worthy of consideration, as coming from a judge like Mr. Justice Maule, and if he had stated a proposition which was not law, Chief Justice Campbell or other judges would have been sure to have taken exceptions.

The Recorder asked if Mr. Wayling paid for all the gas that was registered?

Mr. Worlledge: Yes.

The Recorder: Then he paid for that which you say he had feloniously stolen.

Mr. Worlledge said that, if he turned back the meter 600 feet, and it came back to the number again, he contended he had taken some gas which had not been paid for. What he paid for was the old gas registered; if afterwards the meter was turned back and got to the number again, that which subsequently passed through was not paid for, and was feloniously taken.

The Recorder asked whether Mr. Worlledge admitted that Mr. Wayling paid for the gas which the meter appeared to have registered?

Mr. Worlledge admitted he had paid for what appeared on the face of the meter.

Mr. Power said, Mr. Worlledge contended that Mr. Wayling did not pay for the gas supplied after the meter was tampered with, but he did pay for the gas supplied which had been truly registered. He contended that a case exactly like the present would be that of a man who had a cask of beer, and did not know what quantity it contained, and he intrusted another to measure it out, who measured out only sixteen gallons instead of eighteen, taking away two gallons, intending not to pay for it.

The Recorder said that the closest analogy which suggested itself to his mind was this—of a customer getting access to a shopkeeper's books and ingeniously abstracting a leaf out of his accounts against him, leading him to send in a bill of a less amount.

Mr. Power supposed the case of a person going to a tailor in May for a coat, and afterwards, in July, ordering a pair of trousers, taking the opportunity to abstract the leaf containing the charge for the coat—could the tailor indict him for stealing the coat supplied and delivered to him by his man? Mr. Power proceeded to argue that there was a remedy provided for such cases as the present, under the 18th clause of the act. He wished to satisfy the jury that there was no pretence for saying this was a larceny. He thought any person who forced back a meter fraudulently injured such meter, which was one of the matters provided against in the 18th clause.

The Recorder said there were a certain number of offences in the consumption of gas, which were made the subject of the general clauses. These were the only offences which the Legislature were sufficiently informed about at the time as to make them the subject of penalties. Did it follow that, supposing it fell under any of the categories of that clause, this case might not also be one of larceny?

Mr. Power admitted it might; but there could not be a pretence for saying there was larceny where a man voluntarily parted with his property.

Mr. Mills said, Mr. Worlledge had submitted that, with respect to so much of the gas which the meter correctly registered, there was no larceny, but as soon as a person put back the index, all the gas afterwards supplied was stolen. He quite agreed with his learned friend on the first point. With respect to the second point, it was perfectly clear that no larceny would be established in such a case, for what his friend argued upon was not enough to constitute a larceny—there must be an intent to steal; even if it were true that he had no right to take that gas, if he intended to pay for it, the charge entirely failed. Without the *animus furandi* the charge would fall to the ground. He contended that the gas which came and was registered after the meter was turned back, supposing the latter to be true, was intended to be duly paid for. The case of a brewer which Mr. Power had put was, he thought, one exactly in point, when it would not be larceny for a man to take a gallon of beer intending not to pay for it, out of that intrusted to him to measure out. In the case of a bailment of goods, the original *animus* would be looked at; but there was a distinction between a bailment and a case where a party parted with the property. He might practise the grossest frauds, and not intend to pay, but if a man parted with his property it would not be larceny. In the case the Recorder had put, supposing that, instead of tearing out a leaf, a man committed forgery by altering the accounts, that would make him guilty of forgery, but not of larceny. He contended that in no case or form in which this matter had been submitted, could a charge of felony of any part of this gas be substantiated.

The Recorder said, that supposing a person found out that he could tamper with the register, and, under the knowledge of that power, used the gas with the intention that as fast as the gas went the index should be moved back, so destroying the account of it, would the gas so consumed be stolen?

Mr. Mills contended it would not, so long as possession of it passed voluntarily from the company.

The Recorder put the case of an account being kept on a slate or chalked behind a door, and a party going and rubbing it out as analogous to the present one.

Mr. Worlledge contended that the fact that the magistrates might have dealt summarily with the case under the section quoted did not prevent its being a larceny, if the facts of the case bore out such a charge. With respect to the Queen and White the opinion of Mr. Justice Maule was extra-judicial. He contended that, Mr. Wayling having had the means of tampering with the meter through the hole, the company being entirely ignorant of it, if, after that, he consumed gas with the intention of turning the meter back, and did turn it back, this was a felonious taking. If, having got such a control of the meter, he acted thus, and turned the register back, intending to defraud the company, he violated his contract with the company, his licence was voided, and then there was as much an *asportavit* as if there were a surreptitious pipe for conveying away the gas.

The Recorder asked if he understood Mr. Worlledge to argue that because the index had travelled over the same ground, and had previously registered it, and that which was registered only brought the meter to the same point at which it was tampered with before, that portion must be considered feloniously stolen?

Mr. Worlledge went further, and would say that, if after that, a man consumed some more, meaning to turn the index back again to the same point, he apprehended this would be clearly a felony.

The Recorder: The felonious intent occurring before the *asportavit*.

Mr. Burcham, at some length, contended that if, after a man put

back the index in one instance, and then turned on the gas for the purpose of its being consumed, with the intention at the time he did so of putting back the index in order to falsify the next report, and did afterwards put back the index, the felony was complete.

The RECORDER remarked that it was not necessary that a felony should be preceded by a fraud.

Mr. POWER replied, chiefly to the effect that by the 18th section the licence was not voided, but only the power given to the company to void the contract if they pleased. The contract still remained in force. He contended that, if by anything he had done, Mr. Wayling had deprived the company of the sum they were entitled to receive, this was not a larceny of the property supplied to him, but simply a case of a tradesman and a customer, the customer by fraud endeavouring not to pay for the articles delivered to him.

After some further remarks the RECORDER retired, remarking that he thought it proper to take with him the Mayor. After being absent some time he returned into court, and said this case had been presented to the court in a totally different way to that in which it was presented before the magistrates; he had ascertained from the clerk of the peace, when he came to see him the day previous, that it was intended to be presented as a case of larceny, though he had no opportunity of knowing in what way. He had thought it right to send for Mr. Salmon, who, he understood, was employed on the part of the gas company to instruct counsel in the case, to know in what way it was intended to present a case of larceny, merely that he might, if he could, assist the grand jury (provided he thought it possible that a larceny could have been committed) in the preliminary inquiry which they would be engaged in. He thought the grand jury might feel a difficulty without assistance from him to find their way in a case which must have been the subject of much conversation, and which had been examined by the magistrates as a case of misdemeanour, if without comment from him it were presented in a different form. He had certainly listened most anxiously to the case as it had been opened by Mr. Worlledge, with every wish to see whether by anything, by any ingenuity, by any law of which he was ignorant, but which that gentleman's research might furnish him with, this was a case which he could properly leave to the jury as one of larceny. He confessed that neither of the counsel for the prosecution had satisfied him that the case, as opened by Mr. Worlledge, was one of larceny. The leaning of his mind had been, had there been any doubt on the law, to present the point to the judges above, and to state a special case for their opinion, reserving the judgment, if they should be of opinion that the prisoner should be brought up for judgment, till the next sessions; of course this was to have been dependent on the jury finding that particular acts had been committed, then to take the opinion of the judges whether those acts constituted a larceny. At the same time he felt that the unfortunate man at the bar was entitled to the expression of the decided opinion he must give on this case, and that opinion was supported, though only by an extra-judicial diction, yet that of a very learned judge, who seemed to have anticipated a case of this sort. Everybody might draw their own conclusions of the prisoner's acts, but he was bound to say that, supposing the facts to have been proved as stated by Mr. Worlledge, or even supposing that a stronger case, as put by himself, had been proved—supposing that the prisoner should have taken the gas with a dishonest intention, and afterwards intended, if able to do so, to alter the account, even in that case it would not constitute an act of larceny. He could not suppose that, by the supposed tortuous act of tampering with the register, the contract between the company and Mr. Wayling was destroyed; but Mr. Power, in his reply, had cleared up this point, by showing that it was not the intention of the act to destroy the contract, but only to enable the honest party to the contract, upon finding themselves dealing with a dishonest party, at their election to void the contract. He would make this remark as regarded the company, that it was certainly unfortunate that, when they discovered that which had awakened their suspicion, they had not put up a fresh register.

Mr. POWER said he believed the meter was originally used in the fair in this town, and he did not know who had had it. It was a second-hand meter, and, if the Recorder looked at the figures, it seemed to have registered in an extraordinary way. He should have rested on this as a very strong fact, in justice to Mr. Wayling, and he believed he should have succeeded in showing there was no fraud on his part.

Mr. SALMON mentioned that the company knew nothing of the small amount consumed, but the manager only, and he did not think proper to complain to the directors till he had satisfied himself that the meter had been tampered with.

Mr. WORLLEDGE said that, after the Recorder's intimation, he should not press the charge; and the jury thereon gave a verdict of "Not Guilty."

MAIDSTONE QUARTER SESSIONS.—OCT. 29, 1853.

(Before Sir W. B. RIDDELL, Bart., Recorder.)

CHARGE OF STEALING GAS.

George Hearnden Golding was charged with stealing, on April 10, 1853, 1000 cubic feet of gas, the property of the Maidstone Gas Company. There were several other counts in the indictment, charging him with stealing the same quantity on various previous occasions.

Mr. HORN was for the prosecution, and Mr. ADDISON for the defence.

Mr. HORN said that the loss of gas in the year 1851 was not discovered till recently, and therefore the prisoner had not had the benefit of hearing the evidence on it when he was before the magistrates. A plan of the premises, showing the situation of the meter, was placed upon the table, and the learned counsel, in opening his case, made frequent reference to it and some plans that had been drawn out. In 1851 the prisoner, being a worker in gas, was supplied with gas which he was to use for the purpose of displaying an apparatus for the purpose of cooking by gas; and it would be shown that he had used a portion for his own uses, thereby defrauding the company. A private pipe passed under his workshop, which he would prove by a witness fraudulently conveyed gas for the purpose of soldering, and it was sometimes used in this way to a large extent. It was also used for other purposes; and in the basement was a copper which was heated by a flame of gas from a pipe which was not connected with the meter. In 1851, after the agreement was made with the prisoner, Mr. Bartlett, the company's superintendent, called at the prisoner's house, and then thought that all was not right. He thought the gas had been used in a most wasteful manner, and he told Golding so. He would prove that a pipe which had been used by the prisoner in conveying the gas was, after that visit, removed. Nothing further took place until the present offence was discovered. The learned counsel said he had no doubt that the evidence would establish a complete case against the prisoner. He then called

Mr. *Samuel Bartlett*, engineer to the company, and manager of their works, who deposed that the prisoner had been employed until recently as a gasfitter to the company. He was also intrusted to look after the consumption of gas by many of the company's customers. In 1851 the witness, by the authority of the company, gave him permission to make experiments in cooking by gas. The gas for this purpose was conveyed through a separate pipe, as shown by the plan. The gas used for the experiments was measured, but not charged for, his (witness's) opinion being that the company would be benefited by an increased consumption of gas, and the prisoner would be benefited as a gasfitter. At the time of making these arrangements, and subsequently, he had no idea that there was a third pipe which did not communicate with either of the meters. In the summer of 1851, about three months after he had given the prisoner permission to make these experiments, he was at the prisoner's premises, and he saw there was a very large quantity of gas burning in the back shop, which induced him to say to the prisoner that he did not think that all was going on right. He said he should come upon the following day and examine the premises, and he hoped he should find everything right, and that no fittings were improperly attached; adding, if he did not find it so, he should report the matter to the company, and the consequence would be very serious. He called accordingly, and he then saw nothing to induce him to suppose that the gas consumed was burnt without being properly measured and paid for. In September, 1851, he again visited the prisoner's premises, and he found a hole in the wall of the lower story by means of which a pipe could be introduced. He had no knowledge of this pipe.

Cross examined: In order to permit the use of the gas he authorised the carrying of a secondary pipe round the meter used by the prisoner in his ordinary occupations. This second pipe communicated with a meter placed upon the mantel-shelf, in the room where the cooking was carried on. The agreement between himself and the prisoner was a verbal agreement. The experiments ceased, he believed, in the year 1852, some time in the summer. Witness ordered the experiments to cease. He believed that they were continued about a year. It might have been more than a year. Notwithstanding his first suspicions, he allowed the experiments to continue up to the time he had mentioned, and he continued to recommend persons to take their dinners to the prisoner's house, where they were cooked gratuitously.

Re-examined: In 1851, he only saw one pipe leading into the meter and the experimental pipe leading into the experimental meter.

William Gardner deposed that he was formerly in the employ of the prisoner. He was apprenticed to him in 1850, remaining till March, 1852. He assisted in fitting the gas pipes. He fixed the experimental pipe, and at that time the pipe to the prisoner's private meter was in existence. Some time after fixing the experimental pipe he fixed a pipe from it running straight through the house. That pipe was carried through a cupboard, and through a wall into a back workshop. There were consequently two pipes running through into the back shop—one conveying the measured gas, the other the unmeasured gas. There was a burner to the third pipe, and the gas so conveyed was used for all purposes of soldering, and for proving gas-stove burners, and very often, when they proved these, they took off the burner and burnt as much as they could get through the pipe. The third pipe was used directly it was put up. It was in constant use—perhaps twenty times in three months. After the third pipe was put up, Mr. Bartlett came. After he was gone the prisoner wished him (witness) to remove the third pipe, as Mr. Bartlett told him he was coming to examine the fittings. He consequently removed the pipe on the same day. He did not remember any one helping him to remove it. There were two pipes branching from the third pipe, which were carried to two rooms up stairs. One was never used, and the other very little. These branches, when the third pipe was removed, were attached or connected to the secondary or experimental pipe. He and the prisoner connected these two branches to the secondary pipe. Some time after the cooking stoves were fixed, a copper was fixed to the back room. There was a short pipe connected with the pipe No. 2 (the experimental pipe). The gas conveyed by that pipe would burn under the copper. It would be unmeasured gas. He had seen the copper in operation.

Mr. *Bartlett* recalled: Said he had no knowledge or idea of the existence of the copper spoken of until Sept. 6, 1853. He was perfectly satisfied the copper was not there when he inspected the premises in the summer of 1851.

Gardner's examination continued: There was a stopcock, and, if the pipe were disconnected, then the gas used in heating the copper would be measured; but he never saw measured gas consumed. He had often seen unmeasured gas used.

Mr. ADDISON addressed the jury for the prisoner. He said that a learned lawyer, long ago, in speaking of a corporate body, had described it as a legal entity, having neither a soul nor a conscience; and certainly, when he saw the Maidstone Gas Company on the one hand, and that poor man at the bar on the other, with all their weight and influence in one scale, weighed against his character and reputation, which he would show them was one of the very highest, he felt, par-

ticularly after the way in which this charge had been conducted, that it had shown itself to have neither a soul nor a conscience. The aggregate of individuals comprising the shareholders might embrace some of the jury, for aught he knew; but so satisfied was he of meeting with justice and fair dealing at their hands that he had not exercised the undoubted privilege of challenging any of them. It was all very well, on the part of the prosecution, to say that they had a right to do so and so; but whether it quite just, fair, and equitable to do what they had a right to do was oftentimes quite another thing. By act of Parliament it was provided that whenever a man was charged with an offence which put his liberty in peril, to say nothing of character and reputation, he was entitled to have a written copy of the depositions of the witnesses, that his counsel might be prepared to meet the facts to be urged against him. It was worse than idle—it was deluding the prisoner—to pretend to give him this right, and at the last to bring forward evidence he had never heard before. He had been obliged, therefore, to combat circumstances to which his brief was not directed, and rebut charges of which they had never heard till they came into court. The Maidstone Gas Company, no doubt, included many honourable men; but a company, nevertheless, acting together, often took proceedings which it would be difficult to anticipate from them individually and singly; and was it reputable that, with a respectable man's liberty and character at stake, they should present another charge than that before made, which he was prepared to meet? No doubt his learned friend was right in saying that to steal hydrogen gas was as much a felony as to steal oil or wine, or any other thing; he was not going to take any technical objection; he would take it on higher and broader grounds. He pleaded not guilty of stealing any portion of this gas—not guilty of stealing one single bit of it. Whatever gas the prisoner had taken he certainly conceived he had a perfect right to take, and, if it were taken in error, it was a perfectly unintentional error. It was not the mere amount of imprisonment—six years' penal servitude—awarded to such an offence, but that slur on a man's character which, going out of gaol a convicted thief, pointed the finger of scorn at him. He might go from door to door, and no man would take him into his house. No service of trust or confidence could again be his—the worst paid work and the lowest station is his, or he must starve—he must sweep the crossing or break stones on the road—he must become emphatically a hewer of wood and a drawer of water; and therefore it was that he was anxious for this poor man to leave the court, despite all the resources of this great company levelled against him, without his prospects in life being utterly blighted and his character not entirely and irrecoverably gone. The whole case, then, rested on the terms of a verbal agreement made between this man and Bartlett, so long ago as 1851; and it would be upon that that the whole question for the jury to decide would rest. Mr. Bartlett, like other clever men, had not a very clever way of expressing himself. He might have a clear meaning of what he intended in his own head; but did that make it certain that the other man understood it too? Scientific men, with a great deal of knowledge in their heads, were not always able to diffuse that knowledge; and Mr. Bartlett appeared in this predicament. The whole case, then, rested on an indistinct verbal arrangement made long ago, and the doubtful testimony of a runaway apprentice, who, knowing all these circumstances, says never a word about them until Mr. Bartlett takes an excursion train to Dover, and drags them to light. After commenting upon the evidence, the learned counsel said that the removal of the pipe was wholly consistent with the prisoner's innocence. Bartlett was dissatisfied at the wasteful use of the gas, as he had a right to be, and complained of it; the prisoner naturally considered the arrangement at an end, and had the pipe complained of removed. He had not consumed gas that he was unauthorised to burn, or, if he had, it was unwittingly. He had remained in the employ of the company up to last September, and, as the excellent character he bore was well known, he declined to call witnesses.

The RECORDER summed up at some length; and the jury, after a few minutes' consultation, returned a verdict of "Guilty," with a strong recommendation to mercy.

Mr. HORN said that there were two other indictments against the prisoner, and he proposed to proceed with the most recent of them.

The RECORDER declined to ask the jury to go into a case which might last a long time at that late hour, and therefore should adjourn the court until Wednesday.

Mr. HORN, after consulting his clients, then said that they would not press those charges, and the prisoner was consequently acquitted upon them. The learned counsel then mentioned that it was not until Friday that the evidence of Gardner could be obtained, he being fearful that he would be reclaimed by his master.

Mr. ADDISON: I shall not withdraw one word that I have said.

The RECORDER then passed sentence. He said: Prisoner, you have been convicted on evidence which is satisfactory to my mind that the jury have returned a correct verdict. You have fraudulently abstracted and stolen a quantity of gas, which is a peculiarly serious offence in a person like you, employed and trusted by the gas company you have robbed, and enjoying particularly the confidence of their agent, Mr. Bartlett. Considering, however, that the other charges were not distinct transactions, but one and the same arrangement of pipes, and remembering the recommendation to mercy of the jury, the sentence will be a most lenient one. If, however, you continue these fraudulent and dishonest practices, and ever come before a criminal court, depend upon it this will be remembered, and a very severe sentence will be passed upon you. The sentence of the court is, that you be imprisoned and kept to hard labour for six calendar months. (Sensation in court.)

TOWNHALL, SHEFFIELD.—OCT. 20, 1853.

CONVICTION FOR ILLEGALLY BREAKING UP THE HIGHWAYS TO LAY SERVICE PIPES.

(Before the Mayor and Magistrates.)

Peter Dolan, *Rodia* alias *Roderic Carol*, *John Winder*, and *William Hunter*, were summoned for "unlawfully and wilfully causing injury and damage to a certain highway within the township and borough, called Furnace-hill, by unlawfully breaking up and cutting into the said highway; and the said *John Winder* and *William Hunter*, for unlawfully and wilfully aiding and abetting them."

Mr. WILLIAM WAKE was for the complainant, and Mr. BROADBENT for the defendants.

Mr. WAKE said the action was laid under the 72nd section of the Highway Act. It was one of a number of instances in which the streets had recently been broken up.

George Eyre, labourer, in the employ of the old gas company, deposed that about eight o'clock on the evening of the 12th inst., he saw Dolan and Carol digging a trench right across the road. Winder tapped the new company's main there, Hunter assisting him in enlarging the hole. They laid a service-pipe to the main, and closed up the trench, about ten o'clock. In cross-examination, the witness admitted that he was employed by Mr. Unwin to watch in the streets, and that no vehicle came up while the trench was open.

John Chester, also employed by the old company, confirmed the previous witness, adding that Winder told the men to take up another flag, and make the trench wider.

Mr. BROADBENT admitted the acts proved against the defendants; he had a clear defence to the complaint. He should prove by Mr. Norton, the owner of a dwelling-house in Furnace-hill, opposite to which was an extensive foundry, occupied by Messrs. Norton, Symons, and Ward, that it was by the order of this firm, and under their directions, this trench was dug, and that the service-pipes were laid for the necessary carrying on of their business.

Mr. *Norton*, of the firm of Norton, Symons, and Ward, proved that he was the owner of property in Furnace-hill, opposite to the foundry occupied by himself and partners. The firm required gas in their workshops for the purposes of their trade, and he ordered the two first-named defendants to dig a trench, and put down the pipes. He superintended the work, and had previously obtained the permission of the highway board to open the street.

Cross-examined: Witness said that an old man brought the message from the highway board. He found Dolan and Carol working on the highway in Pond-lane, and asked them to make the trench after their day's work was done. He did not give any orders to the other two defendants who put down the service-pipe. He could not say where they came from. He had given Mr. Wright orders to do the plumbing work, and should pay him for it. He had paid Dolan and Carol for their work. He did not expect to be repaid. It was near two months since he applied for the consent of the highway board. He had made an application to be supplied with gas by the new company; it was some time ago, but he could not tell how long. He saw the engineer of the company at the gas works. He was told, that if he laid the services, he must do it on his own responsibility. He told the engineer that they (the firm) should lay down a service when they wanted it. He was a shareholder in the new company, and it was by the orders of the firm the old company took away their meters.

Mr. WAKE: If I had known this before, I should have put you in the summons.

Re-examined: Witness said, his only reason for doing the work at night was, that the public might not suffer any inconvenience therefrom.

After the magistrates who heard the case (Mr. Hawksworth and Mr. Naylor) had consulted with the clerk, Mr. HAWKSWORTH said, the bench were of opinion that there was nothing in this case to justify the occupiers of the property in breaking open the highway. They inflicted a penalty of 10*s.* upon each of the defendants.

Mr. BROADBENT said he had instructions to appeal.

Mr. SMITH: The magistrates wish—at least they can have no objection to it.

JURY COURT, EDINBURGH.—SATURDAY, JULY 30, 1853.

THE BOGHEAD COAL CASE—GILLESPIE *v.* RUSSEL.

(*Continued from page* 247.)

Professor *Brande* was called, and examined by the DEAN of FACULTY: He stated that he was superintendent of the coining department of the Royal Mint, and a fellow of the Royal Society. Was for a considerable time Professor of Chemistry in the Royal Institution; in which office he succeeded Sir H. Davy. Had received from Mr. Rettie and Mr. Forbes a number of specimens of a mineral found at Torbane-hill, near Bathgate, and subjected them to a chemical analysis, first by the process of destructive distillation. Obtained from one of Rettie's specimens 30 per cent. of carbon (fixed) and ash, and 70 per cent. of volatile matter. From another of Rettie's specimens he got 28 per cent. of carbon and ash, and of volatile matter 72. In one of Forbes's he got 33 carbon and ash in one case, and 67 volatile matter; and in another specimen, 31 carbon and ash, and 69 volatile matter. Witness took a portion from each specimen to make an average sample, and on analysing this, the result was, 10 per cent. of carbon, 20 per cent. of ash, and 70 of volatile matter. Also subjected three specimens of Newcastle coal to the process of destructive distillation, and the average result of his experiments was 79 per cent. of carbon and ash, and 21 of volatile matter. The proportion of carbon and ash was—carbon, 77; and ash, 2. The residue of the Torbane-hill mineral was materially different in character from the residue in the case of coal. The carbonaceous residue of the Torbane-hill mineral was a pulverulent sort of charcoal; the other left ordinary coke. The earthy residue of the Torbane-hill mineral was principally distinguishable from the earthy residue of coal by its very large quantity, and also by the almost entire absence of salts of lime, which were found in coal generally. There was also a difference in the colour of the ash. The ash of coal was generally brown, from the large quantity of iron it contained; but this mineral contained merely a trace of iron, and its ash was white. Witness subsequently instituted another series of experiments along with

Mr. Cooper, of London, for the purpose of comparing the Torbane-hill mineral with the Marquis of Lothian's coal and the Lesmahago. The process he employed was the same as before—destructive distillation; and the result in the case of the Lesmahago coal was 41 per cent. of residuary carbon, 3 of ash, and 56 of volatile matter. The Marquis of Lothian's coal gave between 44 and 45 of carbon, 2·4 ash, and 53 volatile matter. The Torbane-hill coal, taken from the same field as this mineral came from, gave 55 of carbon, 5 ash, and 40 volatile matter. This was the average of the experiments. The next experiment to which they subjected the mineral was pulverising it, and dissolving it in naphtha. The same treatment was applied to some samples of the cannel coal and Newcastle coal. The naphtha in which the coals were dissolved presented a brown tincture, and also a peculiar irridescent appearance in regard to reflected and refracted light, like an opal; with the mineral, the naphtha was quite colourless. The watery products of the distillation in the case of the coal were alkaline from the beginning; in the mineral they were slightly acid in the first instance, and became alkaline afterwards. This he attributed to the presence of a very small quantity of ammonia, which had formed during the distillation, and which neutralised the acid. The alkaline character of the watery products arose from the formation of ammonia in consequence of nitrogen and hydrogen in the coal. The slight formation of acid, which he believed to be acetic acid, was occasioned, during the process of distillation, by the union of carbon, hydrogen, and oxygen. The gases produced by the Torbane-hill mineral were principally varieties of carburetted hydrogen. From the results of the experiments he had made, he considered that this Torbane-hill mineral was certainly not coal. As a chemist, he would pronounce it not to be coal.

Cross-examined by Mr. NEAVES: Was not very particularly acquainted with the Scotch cannel coal. Could not tell the *total* amount of carbon which the mineral contained out of 100 parts, because he did not analyse the quantity of carbon contained in the volatile matters and gases. He did not make what was called an ultimate analysis of the mineral. There was certainly more carbon in the mineral than 10 per cent., for a considerable proportion of the 70 of volatile matter would be carbon. The volatile matter consisted of carburetted hydrogen, which was a compound of carbon and hydrogen. There was certainly a small quantity of carbon in this mineral compared with that contained in the acknowledged coals he had examined. He considered that the small quantity of fixed carbon necessarily implied a small quantity of total carbon. The small quantity of carbon might arise from there being a great proportion of hydrogen. It followed, as a matter of course, that where there was a large quantity of highly inflammable gases, of oily matters, and tar, there must be a considerable quantity of hydrogen also going off in these. The residuary carbon must, therefore, be diminished to that extent. If there were a small residue of carbon, he would infer that the quantity of carbon in the mineral was relatively small. He had never heard any particular denomination of coals called "gas coals." He had heard it said of some coal that it was a very good gas coal. Coals employed in gas factories were frequently called gas coals. He presumed that coals abounding in hydrogen were, generally speaking, the fittest for the manufacture of gas, because hydrogen was required for the formation of coal gas. Hydrogen and carbon were the ingredients of pure gas. To make coal gas there were generally two or three, if not more, varieties of carburetted hydrogen consumed, which combined in definite proportions. To make carburetted hydrogen, the more hydrogen and carbon there was to combine together, the better. Coal gas was obtained by a process of distillation somewhat similar to that which witness adopted in his experiments. The carbon which escaped combined with the hydrogen, and the unexhausted carbon remained as fixed carbon. The more carbon went off, the less remained, and the more gas, the less fixed carbon. The inference which he deduced from the brownish tincture presented by the naphtha in which the coal had been dissolved after pulverisation, and the colourless appearance of that in which the Torbane-hill mineral had been digested, was, that there was a very minute quantity of colouring matter taken up from the coal, which he believed to be bitumen, and which did not exist in the Torbane-hill mineral. He should say that there was a trace of ready formed bitumen in the coal, which did not exist in the Torbane-hill mineral. The ordinary ingredients of coal were carbon, hydrogen, oxygen, nitrogen, sulphur, generally a small portion of iron, and earthy matters. The ingredients of the Torbane mineral were carbon, hydrogen, oxygen, a mere trace of sulphur, a very minute quantity of nitrogen, a very large quantity of earthy residue, and a mere trace of iron. The presence of sulphur was very disadvantageous for the purpose of making gas. The more volatile matter there was, the better. The larger the quantity of tars, oils, and other hydro-carbons in the coal used, the better was the gas, and the greater was the yield of gas. He considered this not to be a coal, but to be a peculiar mineral. He had never seen a specimen of it before, and, not being a mineralogist, could not pretend to give its name.

Re-examined by the DEAN of FACULTY: "Gas coal" was a popular commercial term, distinguishing the coal merely from the uses to which it was applied.

The JUDGE: Like "smithy coal," for example.

The DEAN of FACULTY: Or "steam coal," which means a good coal for raising steam. "Household coal" and "furnace coal" are terms of the same kind.

Witness: The name of coal gas was derived from the circumstance that it was generally obtained from coal; but gas had been produced from other substances, such as oil and resin. The proportion of coal which yielded gas was not the proportion which was most valuable for fuel. When the portion which was useful for making gas was disengaged, there remained a residuum—coke—which was useful as fuel. All substances that were impregnated with bitumen would give off the carburetted hydrogen of which gas was composed. There were many minerals highly impregnated with bitumen that had no sort of resemblance to coal—for instance, sandstone and asphalte. The presence of large quantities of tars, oils, and other hydro-carbons in a mineral, would not give it the character of coal, nor was a combination of carbon, hydrogen, oxygen, nitrogen, sulphur, and earthy matter, necessarily a coal. It depended on the relative quantities and the variety of their characters, independent of its chemical composition. It was generally true that a small quantity of fixed carbon implied a small total quantity of carbon, and that the amount of fixed carbon would vary according to the quantity of hydrogen in the mass. Witness was the author of a book called "Brande's Manual of Chemistry."

By Mr. NEAVES: A combination of elements, as in the Torbane mineral, would not necessarily give coal; it depended on the composition, as well as in the variety of other characters independent of the chemical composition. The difference between the composition of the Torbane mineral and that of coal was the enormous quantity of earthy matter which the former contained, and the very peculiar black sooty character of the carbon which remained behind, and which was anything but coke. The experiments he had made showed that the Torbane mineral contained 20 per cent. of earthy matter against 2 per cent. in acknowledged coals. He had found as much as 5 per cent., but not more, of earthy matter in one coal, and that was Torbane coal.

Professor *Thomas Anderson* examined by the DEAN of FACULTY: Was Professor of Chemistry in the University of Glasgow. Had examined the Torbane-hill mineral, with reference both to its mineralogical and chemical character. Coal was, in mineralogical science, divided into anthracite and bituminous coals, which were the true coals, and brown coals, or lignites, which were a third and altogether distinct variety. Bituminous coal was a black carbonaceous mineral, with a resinous or waxy lustre, a black and lustrous streak, and a conchoidal fracture. Anthracite was hard and black, with an exceedingly brilliant lustre, and consisted principally of carbon, which was almost entirely fixed, or might be said practically to be altogether fixed. Lignite was exactly like a piece of charred wood, or of imperfectly made brown charcoal. It contained also considerable carbon, but much less than anthracite. Lignite was unmistakeably a vegetable formation, thence its name. It was found in the tertiary formation—not in the coal measures, or the carboniferous series at all. Bituminous coal was divided into cherry coals, splint coals, caking coals, and gas coal, or cannel coal, which were synonymous terms. Mineralogically speaking, the cannel coal was black, sometimes with a greyish or brownish shade in it; its streak was black and lustrous, and its fracture was large conchoidal; its lustre was resinous or waxy, and it polished very well. The colour of the Torbane mineral was brown; its streak was pale fawn colour, and perfectly dull; there was no appearance of lustre; it was quite dull and earthy; and its fracture was not conchoidal, but somewhat slaty—that was to say, parallel to the stratification. It would not take any polish at all. Had examined some of the Scotch coals. The results he had just stated were arrived at from examinations of the West Wemyss and the Capledrae coals, which, in mineralogical character, approached nearer than any others he had seen, the Torbane-hill mineral. There were, however, important differences between them and the Torbane-hill mineral. The Wemyss cannel was black, with a resinous lustre; its streak was black and lustrous, and the fracture was conchoidal. Had also examined a mineral which was found at Methell, in Fifeshire. Individual specimens of it were found in the pit, which approximated in some respects to the brown colour of the Torbane mineral. Here and there a piece of the Methell might be selected which had a brownish streak; but the ordinary appearance of the coal was lustrous, with a black streak. Even in the brown specimens, the coal was lustrous. Had examined the Torbane-hill mineral with reference to its chemical qualities and composition. An ordinary average specimen, taken from the central part of the seam of Torbane-hill, he found to contain 64·02 per cent. of carbon, 8·9 per cent. of hydrogen, 0·55 per cent. of nitrogen, 0·5 of sulphur, 5·66 of oxygen, and 20·32 of ash. The main ingredients were the carbon, the ash, and the hydrogen. In the other parts of the seam the proportions were somewhat different. In the upper part of the seam, nearly a third part of the whole mineral was ash—the per-centage being 32·3; in the lower part of the seam, the per-centage of ash was 38·54. The average of ash over the whole seam was 30·38 per cent. of the whole mineral—that was to say, the third part of the mineral was ash, taking the average of the middle, lower, and upper parts of the seam. The average of carbon of these different parts was about 60 per cent. It varied considerably; but it did not exceed that proportion. There was a very marked distinction between this mineral and cannel coal, in the proportion of the carbon and ash. The proportion of hydrogen in the Torbane mineral was very much larger than in cannel coal. In the higher gas coals, the hydrogen and carbon were in the proportion of 100 to 10—that was to say, 100 parts of carbon would have 10 parts of hydrogen in union with it. In the Torbane mineral the ratio was 100 of carbon to 14 of hydrogen, or nearly one-third more of hydrogen. The quantities of nitrogen and sulphur in the mineral were much below the quantities to be found in gas coals. The quantities of nitrogen and sulphur in coal varied very much, however. The Dalkeith coal contained an extremely small portion of nitrogen. That was, however, a common cherry coal, and not a gas coal. The quantity of nitrogen which it contained was 0·1 per cent., or one-tenth of 1 per cent. The constituent parts of the Torbane mineral were carbon, hydrogen, nitrogen, sulphur, oxygen, and ash, and these were also the component parts of coal of various kinds. He did not, however, class the Torbane mineral, on that account, as a coal. If that were a reason for classing the Torbane mineral as a coal, it would be a reason for classing many other substances under the same denomination. A piece of wood, for instance, consisted of the same ingredients. A coal was distinguished by its being, in the first place, a mineral substance found in the earth; then, when distilled, it yielded a quantity of gas and

tar, and left behind a quantity of a substance called coke, which was an essential part of the mineral as a fuel. This result arose from the proportion in which the component parts stood to one another, and to the nature of the combination in which they were held. No combustible coke could be made out of the Torbane mineral. The carbonaceous residue left on heating the mineral was ash tinged or blackened with carbonaceous matter. It was partly earth and partly carbon. It had by no means the character of coke, and would not burn, but was in a soft pulverulent state, so that one could write with it on paper. Coke was quite the reverse: it was perfectly compact and hard, and in a caked state, and was the best of all fuel in quality. Had examined bituminous shale from Wishaw, and found it to contain of volatile matters 21·91, carbon 15·96, ash 62·13, and coke 78·09 per cent. The carbon was 20·4, and the ash 20·06, in 100 parts of non-volatile residue. The average of volatile matter in the Torbane-hill mineral was 62·32, of carbon 7·03, and of ash 30·38. None of these minerals, consequently, yielded so much ash as the Torbane-hill mineral, with the exception of the bituminous shale. The Methell, which contained about twelve, fifteen, or eighteen per cent. of ash respectively, in the brown, black, and Pirnie-hill, was next to the Torbane and the bituminous shale in respect of the large proportion of ash. The bituminous shale from Dalkeith contained 38·36 of ash, which was nearly identical with the Torbane mineral. The difference in the amount of fixed carbon between the Torbane mineral and the other coals was even more striking. The amount of fixed carbon in the Torbane-hill mineral averaged only seven per cent., while in the others it averaged 44·1 per cent. The average ash of the cannel coals was 5·75 per cent. In the composition of the residue in the Torbane-hill specimens, the average proportion of coke and earthy matter was 19·4 of carbon, and 80·6 of ash. In the coals, the average was 88·5 of carbon, and 11·5 of ash; so that the per-centages were reversed. That was certainly a very important difference as regarded the mineralogical and chemical character of the mineral. It showed that its base way earthy, which was a very essential difference between it and coal. It was a maxim among engineers that the coke put under a steam-boiler would raise as much steam as the coal from which it had been obtained. That, however, which corresponded to coke in the Torbane-hill mineral was incombustible, and perfectly useless for fuel. Witness had made an analysis of the ash of this mineral, separated from the fixed carbon, which was an average of 19·04 per cent. to 80 per cent. of ash. He found that in 100 parts of the ash there was:—Silica, 56·09; alumina, 40·04; peroxide of iron, 3·24; lime, ·34; and magnesia, ·46. From this analysis he should consider the substance to be clay, silica and alumina being the chief component parts of clay. Iron was also a constituent of clay. Silica and alumina formed together more than ninety-six per cent. of the ash of the Torbane-hill mineral. The 11 per cent. of ash in the residue of coals contained silica, alumina, iron, and quantities of lime and sulphuric acid. Sulphuric acid was a marked constituent in coal. Phosphoric acid and carbonic acid were also sometimes found, but not universally. The quantity of iron which the coal ash contained was very large, but it varied very much. The lime which it contained was in combination with the sulphuric acid, as a gypsum. In the West Wemyss coal, the amount of lime was 8·46, and the amount of sulphuric acid 2·73. The Torbane-hill mineral contained no sulphuric acid, and the quantity of lime was very slight—a mere accidental impurity. Had examined the ash of the Methell coal, and found it to contain the ordinary constituents of coal ash. Both lime and sulphuric acid were abundant in it. Had tested the difference between the Torbane-hill mineral and various cannel coals, by boiling them with bisulphuret of carbon. The solution of coal became brown-coloured, while the fluid in which the Torbane-hill mineral was dissolved remained colourless. The sulphuret of carbon extracted a carbonaceous residue from the coal, but no such result attended the experiment with the Torbane-hill mineral. The result of these various experiments and tests was that he came to the conclusion that this mineral was not a coal. He considered it a new substance, and he did not know any other substance to which he could distinctly compare it. The main points of difference between the mineral and acknowledged coal were, that the mineral had no available coke; that its whole organic constituents were volatile; and that it contained a much larger proportion of hydrogen than coal did. He had visited Torbane-hill, and obtained himself the specimens of the mineral on which he had operated in his experiments.

Cross-examined by Mr. PENNEY: The general description he had given was of the bituminous coal, which he hod defined to be a black carbonaceous mineral, with a resinous lustre, a black or lustrous streak, and a conchoidal fracture. This description did not comprehend either anthracite or lignite. Anthracite was recognised as a coal in common language, but not in strict mineralogical language. It was formerly called coal: the term anthracite was introduced to mark the distinction. It was commonly called coal, nevertheless, though he thought that in strict meaning it should not.

By the LORD PRESIDENT: The term had been in scientific use a considerable time.

By Mr. PENNEY: Did not consider that, mineralogically, the word "coal" properly described anthracite. There was a clear mineralogical distinction. Anthracite contained a very large average of carbon—about 90 per cent. Lignite was also very commonly called coal, but not rightly, for it was a different mineralogical species, and the name "lignite" had been introduced by mineralogists to distinguish it from true coal, in a similar manner to the adoption of the term "anthracite." The component parts of lignite were the same as in common coal—carbon, nitrogen, oxygen, hydrogen, and ash; the proportion of carbon was about 60 or 70 per cent. The cherry, splint, gas coal, &c., were practical divisions of bituminous coals. Gas coal was a well-recognised name, and the same coal was sometimes called cannel coal and parrot coal. All these different descriptions of bituminous coal had, generally speaking, the same components, but they existed in different proportions. Some contained more carbon, and some more ash; and the use of the coal differed according to the proportions of its component parts. What was called gas coal contained more volatile matter than the other descriptions of coal. The quantity of carbon in bituminous coal ranged between 70 and 80 per cent. He knew none that went below 70 per cent. There was blackband ironstone, and bituminous shale, which were found in coal formations, and which contained less than 70 per cent. of carbon. The Methell coal contained only 68 per cent. of carbon, which he considered to be the minimum. From his experience he should say that nothing with a minimum of less than 68 per cent. of carbon was a coal. He should not, however, decide on that alone. If he found that its other substances were in proportion, with a diminished amount of carbon, he might think that it possibly might be coal; but he would not decide even on chemical evidence alone. If he found, for instance, that the hydrogen was about one-tenth part of the carbon, then he should consider that that strengthened the evidence as to its being a coal. He should also look for a proportionately diminished amount of nitrogen and sulphur, and he should examine the composition of its ash. He should make an analysis of a hundred parts of it; and if he found it to contain the other constituent parts of coal, and in the same relative proportions, it would lead him to think that the mineral was a coal, though it contained such a small quantity of carbon. The principal point in the composition of coal was the proportion which the carbon and hydrogen bore to each other. They varied within certain limits; the highest amount of hydrogen alone was to carbon in the proportion of 100 to 10—the lowest about 100 to 5. The Methell coal contained 68·64 per cent. of carbon, and 6·62 of hydrogen. The Lesmahago contained, in round numbers, about 75 per cent. of carbon, and about 7 per cent. of hydrogen. Arniston contained about 75 of carbon, and about 6·6 of hydrogen. He believed that the total quantity of carbon in the Capledrae coal was about 70 or 75 per cent. The following was a complete analysis of the Methell brown:—

Carbon	66·44
Hydrogen	7·54
Nitrogen	1·36
Sulphur	0·84
Oxygen	10·84
Ash	12·98

The hydrogen here was more than usual; but the specimen which he analysed was an exceptional piece of the mineral, and not, he was informed, a fair representation of the average. He should not determine the character of the mineral on the circumstance of its containing a greater or less proportion than one-tenth of hydrogen. In determining whether it was coal or not, he would found his opinion on the whole characteristics taken together in a group. He should consider 11 of hydrogen to 100 of carbon the maximum proportion; and if he found the proportion were much larger, he should begin to think that the substance was not coal. The amount of ash in coals varied very considerably, but it never exceeded one-third of the coke. It might bear very different proportions to the total substance, because its amount would depend upon the quantity of volatile matter thrown out. When the amount of volatile matter thrown out was great, the ash would, of course, bear a larger proportion to the coke. The largest proportion of ash he had found was in the Methell coal, where it was 18⅓ per cent.; the lowest was 1·46—1½ per cent. Bituminous shale was not a coal; it was a clay impregnated with a coaly or bituminous matter. Bitumen might be extracted from it in the same way as from bituminous coals. The component parts of bituminous shale and coal were the same; the difference between the two was a mineralogical one, founded on their structure, and the facility with which the former split. It split parallel to the stratification. Some coals split in the same manner, but they split at the same time by cross fracture; while the bituminous shale had no cross fracture—it came off in irregular lumps. The large per-centage of ash was the distinction between coal and bituminous shale. The per-centage of ash generally exceeded the per-centage of organic or combustible matters, which was less than 50 per cent. Not being a geologist, he could not express any opinion as to whether a substance containing more than 50 per cent. of combustible matters should be classed with coal rather than with shale. The bituminous shale from Dalkeith contained 55 per cent. of volatile matter, 25 per cent. of fixed carbon, and 38 of ash; there the combustible matter was 64 per cent. The Torbane mineral came off in irregular pieces in a lumpy form. With the exception of the fragment of brown mineral from Methell, he had not, in his experience, met with a coal which had a brown streak like that of the Torbane mineral. He was of opinion that the Torbane mineral was not a coal. It was not a bituminous shale, nor did he believe it to be a shale at all. Shale was a very loose word, and was applied to fifty substances. He did not know what to call it; it was a new mineral.

The DEAN of FACULTY: You do not give it a name, because it has not received a name?—Precisely so.

That is not an unknown circumstance in the history of mineralogy, I think?—Far from it.

The nomenclature of mineralogy is receiving additions every year?—When a new substance is discovered, a new name is applied to it, previous to which it has no name.

The LORD PRESIDENT: You give it new name sometimes before you ascertain if it be a mineral or not. (A laugh.)

The DEAN of FACULTY: I think the best order of proceeding is to ascertain what the thing is, and then give it a name.

Witness: Could not give the mineral a name, but had satisfied himself as to what it was, and had stated some things which it was not. It was not coal. Shale had a clayey base, and coal had a carbonaceous base. The bituminous shale would, after combustion, retain its form; but anything which had a carbonaceous base would not retain its form, but would make coke.

The LORD PRESIDENT: So that, after combustion, it resolves its component parts into clay?

The DEAN of FACULTY: We all resolve into clay, my lord. (Laughter.)

Mr. NEAVES: But not into shale. (Laughter.)

Witness: The shale appeared quite amorphous under the microscope; it betrayed no symptoms of organic structure, which was a very important distinction between it and coal. The specific gravity of shale and coal was also very different. All minerals were decided by considering a great variety of things, and not a single characteristic. One general test, however, for distinguishing coal was, that in true coal the ash never exceeded one-third of the coke. The Torbane-hill mineral more than reversed that rule. Lignites generally contained a large quantity of oxygen, which formed a large quantity of carbonic acid, and diminished its value as fuel. The oxygen diminished the amount of heat, and made it less available as a heating substance; it also prevented the formation of carburetted hydrogen, which was found in cannel coal. Wood contained a great quantity of oxygen—upwards of 40 per cent. Lignite contained less oxygen than wood, but a great deal more than coal.

David Milne-Home, Esq., of Milnegraden, examined by the DEAN of FACULTY: Had paid great attention to geology, particularly to that of Scotland, and was familiar with Scotch coal, having, some years ago, made a survey of the coal basins in Mid-Lothian, an account of which was published by him in the "Transactions of the Royal Society of Edinburgh." Had visited the pits at Torbane-hill, and had descended one at Bathvale, about a mile distant, where the mineral was the same as at Torbane-hill. Considered it to be a bed of clay more or less bituminated, but could not class it as coal—geologically and mineralogically. It differed from coal in both external and internal appearance. It had a brown snuff colour, in some places lighter—a variation of colour which he was not accustomed to see in the same bed of coal. The streak was lighter than that of any coal he had ever seen. It was dull and earthy in the streak; whereas the streak of true coal, according to the opinion of geologists, was always metallic and shining. Specimens of coal which he had obtained from the immediate neighbourhood showed the difference in colour, being shining in the streak, and darker. Considered the base of the Torbane mineral to be essentially argillaceous—that was to say, clay, perhaps combined with a little sandy matter, though he was not chemist enough to say in what proportions. It appeared also to be mixed with a particle of mica, which looked like shining points of metal, and were possibly derived from disintegrations of the rocks, when washed down, entering into combination with the claybed. He was not aware that mica was ever found in the substance of true coal. Its principal base was certainly a very different thing from any that he had ever found in true coal. In the specimen produced, bitumen occurred in visible veins, or portions like thin layers. He found a large quantity of bitumen in the district. In the limestone it was interspersed through it to an extraordinary degree. The mineral had a very peculiar earthy smell when breathed upon, and the colour changed when the finger was pressed on it after breathing. This he did not find in coal, either in regard to colour or smell. The mineral formed a stratum running through all the workings of the district; and was a member of the carboniferous formation. He conjectured that the bituminous matter had been thrown up by the igneous or volcanic rock, which made its appearance in considerable quantities wherever this mineral existed. In the pit which he examined, witness found a small portion of coal immediately below the mineral; below that there was a bed of fire-clay, about two feet thick; and below the fire-clay, an ironstone, which was worked. [Produced a specimen of the coal, with the mineral adhering to it.] The average thickness of the coal was only an inch and a half. The specimen exhibited very distinctly the difference between the appearances of the two—the coal and the mineral. In the same field there was a considerable seam of coal, about 2 feet 8 or 10 inches thick. At most of the pits the workable coal was from 10 to 12 feet above the mineral. The true coal was traceable for a great distance, and had a great uniformity of surface. The other strata varied extremely in thickness. The mineral at Bathvale was three or four inches thick; and in some of the other pits it was as thick as 21 inches. It varied very considerably, and in one of the pits disappeared altogether, although the strata contained coal both above and below. The received opinion of geologists with reference to the uniformity of the thickness of coal was, that coal consisted entirely of a mass of plants—vegetables which had grown and died where they were now found; while, on the other hand, the other strata consisted of sediment which had been deposited by currents, and which were, therefore, more likely to vary in thickness, by the quantity of sediment brought down by the currents according to their velocity. The coal was more likely to be uniform, just like peat-mosses, in thickness of structure.

Cross-examined by Mr. NEAVES: Did not consider the mineral to be a carboniferous substance, but a clayey substance into which bitumen had been introduced by the action of volcanoes in the neighbourhood. Visited the pits at Torbane-hill, but did not descend any of them. The pit he did descend was at Bathvale. His specimens he had taken from several hundred tons of mineral which lay at the pit-mouth. The geological definition of coal was "a mass of vegetables consolidated by pressure and heat." Considered anthracite a species of coal—that was to say, coal chemically altered by excessive heat. Geologically speaking, it was coal. Geologists did not give the name of coal to any substance which did not come under the definition he had given. In the language of miners, many things were spoken of by names which were improperly applied, and coal among other things. The non-vegetable character of the Torbane mineral was one reason why he considered it not to be a coal. He would call it a bituminous clay, or a stratum of which the essential basis is clay. In Mid-Lothian, in the parrot formation, the rough coal was found in contact with the parrot. Miners, in giving names to things, went very much by the colour, more than by the actual nature. There was a general name of "blaes" in use among miners, which covered a great variety of minerals. Blackband was for a long time called "wild coal," and to a certain extent it justified the appellation, as it was possible to burn some kinds of it (which contained a great portion of carbonaceous and bituminous matter), and it crackled and threw out splinters. That, he supposed, was the origin of the term.

Edward John Chapman, Esq., examined by Mr. LOGAN: Had, until the last two months, held the office of Professor of Mineralogy in the University College, London, and was going out to a similar appointment in Toronto College, Canada. Had examined and experimented on specimens of the Torbane-hill mineral. The substance in question was a mineral of a brown colour, yielding a very light brown powder, possessing a more or less slaty fracture, a low degree of hardness, and yielding, in fact, to a nail when scratched. Its specific gravity was 1·17. Here and there there was a fracture of a subconchoidal kind; the general fracture might be designated slaty. The odour in breathing on it was argillaceous or clayey, and slightly absorbent. A specimen, on being placed in water for some days, was increased in weight very slightly indeed. It burned with a bright flame and thick smoke, and yielded a more or less bituminous odour. The ash in burning yielded a black powder first, and, on burning it still more, a white powder. The residuum consisted mainly of silicate and alumina of clay, which varied within certain limits, but the mean was about 23·33 per cent. This black ash bore no resemblance at all to the coke of true coal. Examined the substance with the microscope, but found no trace whatever of organic structure. From his observations and experiments, he should say that the substance he had examined was an inflammable shale commonly called bituminous shale. True coal was fossilised vegetable matter, capable of yielding a heat-giving coke, and, consequently, was full of traces of organic matter, which were very distinctly shown in the ash under the microscope. Lignite, or round coal, was a member of the tertiary formation, but found in the coal measures. Lignite, in structure, was more or less fibrous—in many cases like the structure of wood. There was no true resemblance between lignites and the mineral in question here. The lignites possessed an organic structure, and this mineral was destitute of it; though, here and there, traces of organisation might be found, yet it was only where fossil plants occurred. These vegetable traces were, however, quite exceptional. They were merely a mechanical presence in it. The Torbane-hill mineral was a clay impregnated with inflammable matter. It was not calcareous like the bituminous shale found at Kimeridge, in Dorsetshire. It was a silicate of alumina—the other was chiefly carbonate of lime. The Kimeridge shale differed from the Torbane-hill mineral in this respect—that the one was a mass of clay impregnated with inflammable matter, and the other, limestone impregnated with chemical substances. The Torbane-hill was the more inflammable of the two, but its specific gravity in general less. The Kimeridge mineral yielded the larger amount of ash, but it varied very much. The specific gravity of the Kimeridge varied from 1·7 to 1·25; in the Torbane-hill it was below 1·2. Had made experiments in order to discriminate between the Torbane-hill mineral and cannel coals. Examined four specimens of cannel from Lancashire; one yielded an amount of ash varying from 2·16 to 3·10 per cent. The specimen of the Torbane-hill mineral that he examined yielded more than 20 per cent. Obtained a brilliant-looking metallic coke, averaging about 58 per cent., from the cannel coal; from the Torbane-hill specimen he obtained nothing that he could call coke—merely a soft black mass. Cannel coals exhibited traces of organic matter—a respect in which they differed from this mineral. In his judgment, the Torbane-hill mineral could not be justly called, or assimilated, to a cannel coal.

Cross-examined by Mr. YOUNG: When he called this mineral a bituminous shale, he meant that it was a shale from which bitumen might be obtained by destructive distillation. Was decidedly of opinion that it was not coaly matter from which bitumen was obtained in the shale, because there were no traces of coaly structure in the substance. He had experimented sufficiently with the microscope to ascertain that this substance did not contain any traces of vegetable structure, whereas he had always seen such traces in coal. During the many years that he had studied this subject, he had experimented with microscopes on shales from Lancashire, and various other localities that he could not remember, for the purpose of seeing whether he could detect in them the same vegetable tissues as he had observed in the ash of the coal. Had experimented on some five or six shales. Two of them, he thought, came from Germany; most of them he had had for several years, and were collected by himself in Yorkshire and other places. He examined them in a very loose manner, because he did not pretend to be a microscopist. By a "loose examination," he meant without using a very powerful microscope, and without being a perfect adept in all the minutiæ of microscopic examination.

It was such an examination that you would not think it safe to give evidence upon, I suppose?—I would not say that.

Do you think it was such an examination as to enable you to give evidence safely upon the subject?—Combined with my examination of the other characters of the mineral, it was.

Observe, the question is, what you detected by a microscopic examination; now, did you make such an examination as to enable you with safety to give evidence upon the result?—Most certainly; though I have no doubt the investigation may be carried, and has been carried, to a much greater extent by others, who may speak upon the subject.

But a loose examination you think sufficient? What I mean by a loose examination might not be called loose by persons who are not accustomed to these investigations.—Had been in Scotland before, a few years ago. Was not acquainted with the Scotch coalfields; his observations were those of a mineralogist, not of a geologist. Had seen some Scotch cannels within the last few days, but could not state the precise localities from which they had been taken. Did not know, from his own experience, that Scotch cannels were different from the English cannels. Had seen a specimen of bituminous shale from Malines, in France, which closely resembled this mineral; and

various French and German writers mentioned this kind of bituminous shale, but always as being distinct from coal. Haussman mentioned a substance very similar in character. With the exception, however, of the specimen from Malines, witness had never seen any shale the least like this. Never knew a shale nearly so light as this. Shales generally were heavier than coals, because they contained more clay and less inflammable matter. This shale, however, was extremely rich in inflammable matter. All coals contained earthy matter, and were heavier or lighter, according as they contained more or less of earth.

Mr. LOGAN: Applying the test obtained from chemical sources, you are clearly of opinion that the Torbane-hill substance is not a coal?—It is a clayey or bituminous matter; take away the clayey substances, and what remains? In coals, a certain portion of bituminous matter is present, as quite inessential; whereas, this depends as much upon the clayey as upon the bituminous matter present.

Mr. *Hugh Miller*, examined by Mr. MACFARLANE: For the last thirty years he had turned his attention a great deal to mineralogy and geology, but chiefly to geological phenomena. He had, he believed, the completest collection of Scotch fossils that had been made. Was the author of "The Old Red Sandstone," and several other works on geology. Had examined the mineral field near Bathgate. Did not descend any of the pits, but took several specimens of the mineral from a box that was being hoisted up from one of the pits. All true coal was of vegetable origin. Had examined the Torbane mineral as a geologist—not, of course, as a chemist. He found that it differed from all the coal he was acquainted with, in the circumstance that it had not a fixed carbonaceous base, and that it had what all the true coals wanted, a base of earth; which, when the consumable parts of it were burnt out, remained in this form. [Here Mr. Miller presented a specimen of the residuum of the substance after combustion.] This was part of a fire which he kindled of it exclusively; it burned vehemently for a considerable time, and then left behind a residuum like this slaty piece, the same in form as the bits of coal he had pitched into the fire; wanting the fixed carbon, it went dead out, and there only remained stones such as those which the Edinburgh women called "ghaists." (Laughter.) It presented exactly the appearance of those pieces of what were called bad coal, which remained unwasted in the fire, and which were, in reality, fragments of shales that had got among the coal. These were shale fragments that remained after the fixed carbon had gone off in carbonic acid gas. There was not much diminution in the original bulk by combustion. Had there been a good deal of household coal burnt along with it, it might have wasted in that; but having only similar pieces to itself, the fixed carbon passing away, there was not heat enough to diminish the bulk of the whole. The base of true coal was a fixed carbon differing from free carbon, which went off in the flame; it was similar to charcoal, and formed the fire which remained after the blaze was gone. It made a good fuel which burned until it slowly evaporated in carbonic acid gas, and leaving a little residuum of earth in the form of ash. Another very good test was, that a good coal fire glowed before the bellows, but the bellows would blow out the little fire that was in this. (Laughter.) In some of the earliest formations we found that the peat-moss was resolved into something like coal, to which certain geologists gave the name of lignite, not regarding it as peat-moss or coal. Murchison decided that, as our peat-mosses had a brown colour, after that peat ripened into coal it assumed a black colour; and he fixed a line at which from colour alone you could distinguish between the brown peat-moss or lignite and the black coal. Now, there was a basis of distinction here. [Witness here produced specimens of the colour of a true coal, the colour of the substance which the said Murchison regards as the last of the lignites—the last link between lignites and coal, and of the colour of the Torbane-hill mineral.] He would say in regard to this test, that the Torbane-hill mineral differed in colour from any coal he had ever seen, but did not differ much in colour from some of the lignites. From his experience, and the investigations he had made, he had arrived at the conclusion that the substance found at Torbane was not to be regarded as a coal, but that it was the most inflammable shale he had ever seen.

Cross-examined by Mr. NEAVES: The lignite was decidedly different from a coal, though it was difficult to say where the lignite ceased and the coal began. He knew nothing better than Sir Roderick Murchison's suggestion that colour should determine the distinction. It was in his paper on the Brora coalfield that he recommended a shade of colour as an excellent mineralogical test; and certainly there seemed to be an excellent foundation for it, for everybody knew the great difference between the dark dust of a coalyard and the brownish hue with which their Highland streams were tinged. The Brora lignite was fixed upon by Murchison as being the last link between the true coals and the true lignites. Anthracite was decidedly a true coal, having the grand distinguishing mark of a carbonaceous base, namely, the gas or the bitumen. Anthracites, in general, had no gas at all, or very little. Other true coals had more or less of gas. He might mention that the older mineralogists assigned a different class to anthracite. Witness considered it, however, a true coal, being of vegetable origin, and having a carbonaceous base. By base, his meaning was this—Suppose a very soft spongy slate were dipped in tar-oil, or some other inflammable matter, there would then be an inflammable solid or earthy base, slate being its base. If this were burnt in the fire until all the oil was exhausted, then the earthy base would remain; and that was the ordinary condition of the Torbane-hill mineral. There was a very great laxity of definition about coal: substances were called coals that were not so. Geologists attempted to be more precise. The Torbane mineral was the most inflammable shale he ever saw. There were two shales that approximated to it in that respect—the Kimeridge shale, and a shale much less known, the Eathie shale, near Cromarty, in the north of Scotland. There was one marked difference between the Eathie shale and the Torbane shale: almost all the fossils associated with the Eathie shale were animal remains, whereas all the fossils he had seen associated with the Torbane-hill mineral were vegetable organisms. They differed also, of course, in belonging to different geological systems. A few years ago he would have said that there was decidedly bitumen present in this mineral; but, at present, he saw that mineralogists were drawing a distinction between mineral resins and bitumens which had not been drawn before. While he said, then, that it was a richly bituminous shale, he did so under protest, not entering into the modern question as to the difference between resinous and bituminous substances. They all belonged to one great class, but there were distinctions very properly instituted for the purpose of greater exactness.

Are you able to say whether actual formed bitumen is in this mineral or not, or even those elements that may be made bitumen?—If you ask me whether it be a mineral bitumen, I say not; but bitumen in this resinous substance may exist in a shale in very great proportions. In a true mineral bitumen, you have no solid base; in a shale, however rich in bitumen, you have a base that abides after the mineral substance.

But was that which had been before connected with the base actual bitumen or not?—I have already answered that under protest of the modern distinction.

Is there bitumen in common coal?—That is a question for the chemist; I know what the chemist gives as an analysis—so much bitumen, so much carbon, and so much gas; but you may turn upon me and say, Does that coal contain these substances, or do you merely take these substances out of the coal? (Laughter.)

That is exactly what I wish to know?—I refer that to the chemist, merely saying that actual bitumen can be taken out of it.

Can you mention any substances popularly spoken of as coal that are not geologically coal?—A very great many; we find in the 18th chapter of St. John's Gospel, "And the servants and officers stood there, who had made a fire of coals, for it was cold;" and again, in the 21st chapter, "As soon as they were come to land, they saw a fire of coals there, and fish laid thereon." In Psalms xviii. 8, it is said, "Fire out of his mouth devoured: coals were kindled by it." There are twenty-four or twenty-five different places where it occurs, judging from my "Concordance;" but it is only in one place where it is shown that it is not at all the coal we mean that is referred to in all these places—that is in the 120th Psalm, where it is said, "What shall be given unto thee?" &c. "Sharp arrows of the mighty, with coals of juniper." From this I infer that the coals referred to meant wood.

I suppose this laxity of language is not confined to the Scriptures?—Being there, it is but natural, considering how much of our language is derived from Scripture, that it should be very extensive elsewhere. What is called the Bovey coal of Devonshire, is merely a peat-moss of the tertiary times, solid, and of modern origin, but so decidedly a lignite, that no scientific man would call it coal, except just in the popular sense in which it is called a coal by the common people. Then there is a deposit on the banks of the Rhine of what is known as the paper coal, consisting of layers of leaves of dicotyledonous wood, of wood found in secondary deposits, and of comparatively recent origin. The skeleton of a fox was found in that deposit, scarcely differing from the fox of the present day. It is a comparatively modern deposit—in reality a lignite, but is called a paper coal.

Are there any Scotch substances to which the name is applied improperly?—There were worked, from the oolite of Sutherland, substances called coal, which were determined by Murchison to be lignites; at the same time there is a difficulty, when you get these older formations, in drawing the line of distinction between coal and lignites. In the cases of Bovey coal and paper coal, these were undoubtedly misnomers.

Do I understand that a brown coal means a lignite?—The Bovey coal is called brown coal, as a synonyme, and is, of course, as much lignite under the one name as the other.

Re-examined by Mr. MACFARLANE: Perhaps you will tell us, Mr. Miller, what you understand to be designated in the scriptural passages as coal?—I believe the true definition of scriptural coal is simply a piece of wood, or what we call charcoal; I believe it to be a piece of wood.

The court then adjourned.

(*To be continued.*)

Miscellaneous News.

EQUITABLE GAS LIGHT COMPANY.

The ordinary half-yearly meeting of the Shareholders of this Company was held at their offices, John-street, Adelphi, on Tuesday, Nov. 15—Lieut.-Colonel Henderson, in the chair.

The advertisement convening the meeting having been read, a discussion arose as to the propriety of admitting reporters for the public press.

The CHAIRMAN remarked that great inconvenience had already been experienced from inaccurate and garbled reports of former meetings having gone abroad. This was attributable to the circumstance of not having professional reporters present. He thought it was wiser and safer to admit the representatives of the press, as their reports would be more perfect and impartial. The company had nothing whatever to conceal, and he could not anticipate any objection to the admission of reporters.

Mr. WM. PEARSE observed that a very incorrect and garbled account of their last meeting had been published. That report, he believed, was furnished by Mr. Massey, the secretary of the Great Central Company.

The CHAIRMAN: There is no proof of that.

Mr. JOHN BOX strongly objected to the admission of reporters. He did not see why their accounts should be laid before the public. Neither the Imperial nor the Chartered Company allowed it; and he thought that, if reporters were admitted, the company could never go on comfortably. He had great pleasure in hearing the statement

that there was nothing to conceal, but still he was of opinion that the accounts were for the inspection of the shareholders only, and not for the public at large.

Mr. KELLY thought it much better to have a respectable representative of a newspaper present, who would have no interest in giving otherwise than a fair and honest report.

Mr. PEARSE: I have had the honour of knowing, for several years, the gentleman who represents the JOURNAL OF GAS LIGHTING on this occasion; and I can guarantee the impartiality and accuracy of his reports. Nothing could be more fair than the report which he furnished of the proceedings of the last meeting of the London Company.

After some further conversation it was agreed that the reporter should remain.

Mr. ANDREWS, the secretary, then read the minutes of the proceedings of the last half-yearly meeting, and they were confirmed.

The SECRETARY then read the following Report of the Directors, with the statement of accounts:—

REPORT OF THE BOARD OF DIRECTORS OF THE EQUITABLE GAS LIGHT COMPANY TO THE SHAREHOLDERS AT THE HALF-YEARLY ORDINARY MEETING, NOV. 15, 1853.

In laying before you a statement of the operations of the company for the half-year ending June 30 last, your directors have much pleasure in referring you to the Manufactory and Profit and Loss Accounts, which exhibit the satisfactory progress of your concern, as the large increase in the production of gas has realised more than a corresponding advance in the rental and profits of the company; and they are glad to state that the production is increasing in a greater ratio during the current half-year.

Your directors informed you at the last meeting that debenture bonds representing the sum of £24,500 would fall due on the 13th instant, for which interest at the rate of 5 per cent. has been paid; they have paid off bonds amounting to £1800, and have the satisfaction to announce that, notwithstanding the extraordinary rise in the value of money, they have succeeded in renewing nearly the whole of the remainder at 4 per cent., for various terms, by which arrangement an annual saving of £308. 10s. has been effected, in addition to the satisfaction of reducing the amount of the borrowed capital.

The accounts of the company, which have been examined and certified by the auditors, and which are now on the table, exhibit a manufacturing profit of £6975. 7s. 9d., which is chargeable with the sum of £1160. 1s. 9d. for interest due upon the borrowed capital of the company; £259. 7s. 3d. written off as bad debts, and other small deductions: leaving a net profit of £5518. 14s. as the result of the last half-year's transactions; from which your directors recommend a dividend should be now declared of 12s. 6d. per share, clear of the income-tax, being at the rate of 2½ per cent. upon the capital of the company; leaving a balance of £3018. 14s., which they propose shall be carried to the credit of the suspended account as heretofore, of which sum £1800 has been applied in liquidating debentures due on the 13th instant.

Your directors feel that they cannot too forcibly draw your attention to the fact that they have now to contend with a very large increase in the cost of labour, coal, iron, and every material connected with the production of gas and maintaining the plant; these high prices have only partially affected the amounts now submitted, but they will operate disadvantageously in all future half-years during their continuance.

BALANCE SHEET, June 30, 1853.

Dr.					*Cr.*			
To investment, for amount of account, as under:—					By capital joint stock, received of proprietors			
Balance, Dec. 31, 1852	£200,220	0	3			£180,722	10	0
Amount charged this half-year	2,817	6	7		By tradesmen's accounts, due by the company	4,058	3	9
			£203,037	6 10	By rent, balance due	68	6	9
To suspended account, balance Dec. 31, 1852	13,336	4	0		By taxes, ditto	75	1	9
Less written off	150	4	8		By collectors' commission, due	119	1	10
			13,185	19 4	By auditors, ditto	30	0	0
To gas rental due to the company	10,540	4	1		By Chartered Gas Company, balance due	102	8	2
Outstanding accounts	382	11	3		By debentures, balance of amount issued	47,600	0	0
			10,922	15 4	By debentures, interest, ditto to June 30, 1853	461	19	11
To cash, balance in hand			1,782	18 4	By gas deposits due to sundry depositors	131	1	0
To tradesmen's accounts, owing for coke, &c.			322	18 1	By dividends, balance due to June 30, 1853	588	17	6
To coke account, stock on hand			25	4 0	By income and property tax, ditto	162	4	0
To tar, ditto			18	11 3	By profit and loss, balance of account, half-year's net profit	5,518	14	0
To ammoniacal liquor, ditto			16	12 6				
To general stores, ditto			1,043	1 7				
To coals, ditto			2,425	6 4				
To meters, amount of account			6,073	18 2				
To service-pipes, stock on hand			167	8 0				
To pipe-laying account, ditto			597	5 3				
To London Gas Company, amount of account			19	3 8				
			£239,638	8 8		£239,638	8	8

PROFIT AND LOSS ACCOUNT, from Jan. 1 to June 30, 1853.

Dr.		*Cr.*	
To dividends, for 19th dividend under act of incorporation	£2500 0 0	By balance of unappropriated profits	£2650 4 8
To suspended account, per resolution of general meeting	150 4 8	By cash, for bad debts recovered	9 10 0
To interest, amount of account, half-year, to June 30, 1853	1160 1 9	By manufactory account, half-year's working profit	6975 7 9
To bad debts, amount written off, ditto	259 7 3		
To general law charges, for balance of account	21 11 11		
To income and property tax, amount reserved	25 2 10		
To balance, half-year's net profit	5518 14 0		
	£9635 2 5		£9635 2 5

MANUFACTORY ACCOUNT, from Jan. 1 to June 30, 1853.

Dr.				*Cr.*			
To Chartered Gas Company, for gas supplied by them	£ 89	2	9	By gas rental, half-year to June 30, 1853	£19,351	19	4
To tradesmen's accounts, for lime, &c.	121	2	6	By London Gas Company, for gas supplied them	13	3	0
To coals, consumed	7,970	15	7	By coke account, proceeds of sales and stock	3,541	10	9
To wages, paid under this head	2,306	6	6	By tar, ditto	1	7	10
To rent and taxes, paid and due	323	1	7	By ammoniacal liquor, ditto	129	10	0
To directors, paid	286	13	0	By discounts and allowances on tradesmen's accounts.	3	11	0
To auditors, due	30	0	0				
To salaries, paid	864	7	6				
To collectors' commission, paid and due	280	12	5				
To stationery, stamps, &c., paid	68	12	11				
To general charges, paid	172	10	6				
To gas allowance, amount written off	91	16	2				
To wear and tear, amount of account*	3,460	12	9				
To profit and loss, for half-year's working profit	6,975	7	9				
	£23,041	1	11		£23,041	1	11

Oct. 13, 1853. (Signed) GEORGE DYER, EMANUEL WAIT, J. M. HOLDSHIP, Auditors.

The CHAIRMAN then moved that the report of the board of directors, and the statement of accounts as certified by the auditors, should be received and entered on the minutes.

Mr. W. B. RHODES seconded the motion.

Mr. PEARSE, in behalf of Mr. Charles Grey, whose hearing was imperfect, asked whether the consumption of gas increased in proportion to the amount of money laid out in the extension of mains?

The CHAIRMAN replied in the affirmative. There had been an increase in consumption of £1600, as compared with the corresponding half-year of 1852.

After a desultory conversation, the resolution was agreed to.

Mr. PEARSE said he had taken an opportunity at meetings of the Commercial Company, and South Metropolitan Company, to urge the necessity of raising the price of gas. He thought that if the directors and shareholders were to hold a meeting at the George and Vulture, or London Tavern, and had a little talk and a little grumbling over the matter, they might raise the price to 5s. He could bring 50 or 60 gas proprietors who would go for it, and he was certain that the South Metropolitan and the Imperial would support such a proposition.

The CHAIRMAN: What would the Chartered Company say?

Mr. PEARSE: They are, perhaps, the only company that would object. (No, no!) The Chartered Company are never up to the mark in courage. (Hear, hear.) I now beg to move that a dividend of 2½ per cent.—oh! by-the-by, I hardly approve of this; I'm not content with 2½ per cent. (A laugh.)

Mr. C. GREY: Is there any other gas company that only pay 2½ per cent.? (No!)

Mr. PEARSE: I cannot move this resolution.

The CHAIRMAN: Then, for the sake of order, I will move the resolution myself, and put it to the meeting. The Chairman then moved

* There is included in this charge £524. 17s. 7d. for depreciation of meters, being 10 per cent. written off half-yearly; £539. 5s. 4d., cost of new service-pipes, which is always charged to the wear and tear by the Equitable Company; and £364. 5s. balance of account for telescoping a gasholder.

that a dividend be declared of 12s. 6d. per share, clear of income tax, being at the rate of 2½ per cent. on the capital of the company, payable on and after Dec. 31 next, and that the balance of the profit and loss account be carried, as heretofore, to the credit of the suspended account.

Mr. SLADE, in seconding the motion, said that now was the time when something should be done towards raising the price of gas. Perhaps Mr. Pearse's suggestion about calling a meeting would be the proper way of doing it.

The CHAIRMAN: What would the public say? If you admit the public to that meeting, you would be sure to have dissentient voices.

Mr. PEARSE: Let gas directors and proprietors meet. Let the press be admitted, and publish our hard case to the world. Why should we be content with 2½ per cent., when Parliament would allow us 10? We are altogether too tame; we allow ourselves to be trampled upon.

Mr. VANDEWALL: I believe the Great Central would be very happy to raise their price, if they could. I am sure they would do so, if all the other companies would do the same.

Mr PEARSE: I received my dividend this morning, at the rate of 7½ per cent., from the Great Central, but they have not made 6 per cent.

Mr. BOX said the Equitable Company had now arrived at a period when their debentures were satisfactorily settled. They had now turned the corner. They were going on fairly, and he thought that greater dividends should be declared. He would move, therefore, as an amendment, that the dividend should be at the rate of 3 per cent. per annum. He thought that they might fairly divide 3 per cent., and leave a good balance in the hands of the directors to carry on the concern fairly, honourably, and equitably, as men of business.

The CHAIRMAN said that the report had prepared them for an adverse half-year, when the cost of production would be heavier than at present. They were at one time contented for twelve months to remain without any dividend, owing to the difficulties in which the company was placed. He thought it better that the shareholders should be satisfied at present with 2½ per cent. than that the directors should be left without funds to carry on the business with advantage.

Mr. VANDEWALL asked whether it was possible for them to conduct the affairs of the company without some money in their possession? They had, from time to time, increased their works, and thereby the rental of the company. That rental was now coming back; they were attempting to reduce their debenture debt, and had done so this half-year to the extent of £1800. He thought that the paltry sum of £1200 should be allowed to remain as a working balance for this half-year.

Mr. Box said that it did not come with good grace from the worthy director to say "the paltry sum of £1200," for that would leave an impression that they had no more money to go to market with, while they had got nearly £6000 besides.

Mr. PEARSE seconded the amendment.

The CHAIRMAN: It appeared from our accounts that we have a surplus of profit of £5518. Now, let me show how that sum has been disposed of by the directors. The 2½ per cent. would amount to £2500. If you look at the account, you will perceive that there has been added to the investment, for the half-year, £2817. Where is that to come from? £1800 we have paid off in bonds, and £1300 for new works. Now, where is your 3 per cent. to come from? The whole of it is already disposed of—a portion of it in the investment, a portion in the repayment of bonds, and a portion in the 2½ per cent. dividend.

Mr. Box thought they had good ground to stand upon. In previous half-years, much of their lighting was uncertain and casual, such as theatres and places of amusement, which were very contingent. Now, they had not more than one or two of those unsteady customers. The increase of rental had arisen from steady custom, and, as they were going on so prosperously, he thought they might well afford to pay 3 per cent.

Mr. KELLY: Yes; but there is also an increase in the price of materials.

Mr. BOX: But you have got a great stock of coals on hand.

Mr. KELLY: We have, but at an increased price, and you cannot expect that the returns of the next half-year will be as favourable as the present.

Mr. BOX: Were there not some contracts made before the rise in the price of coals took place? Coals were very low at Midsummer.

Mr. KELLY: Our coals are generally contracted for in April, and the prices last April were greater than in the preceding year.

Mr. PEARSE: If you divide 3 per cent., it will be only £3000.

Mr. KELLY: But the difference would have to be taken out of capital, and we might then be compelled to borrow at a very high per centage.

Mr. BOX: If you want £500, I will advance it.

Mr. KELLY: At what per cent.?

Mr. BOX: I will give it you if, in consequence of raising the dividend, you have not sufficient capital to carry on with. (Cheers.)

Mr. C. GREY: I'll give 10s. (Laughter.) The best way is for the directors to concede the point, and not to be pressed.

The CHAIRMAN: We cannot do so. I have already explained to you that the whole of our surplus has been disposed of, and if you press this resolution, we must go to the bankers and borrow money at a high rate.

Mr. C. GREY: We have been a long time without any dividend at all. Recollect you are in a better position than the Phœnix, and they pay 3½ per cent.

After some conversation, the amendment was withdrawn, and the original resolution carried.

On the motion of Mr. HADLAND, seconded by Mr. BOX, the thanks of the meeting were unanimously accorded to the directors.

The CHAIRMAN having briefly acknowledged the compliment, the proceedings terminated.

METROPOLITAN COMMISSIONERS OF SEWERS.

TUESDAY, Nov. 15, 1853.

A special Court of the Commissioners was held this day—R. JEBB, Esq., in the chair.

The hearing of the summonses against the Western, Commercial, and Great Central Gas Companies, calling upon them to show cause why they should not be fined each in the sum of £50 for pouring their gas refuse into the public sewers, was resumed, by adjournment from Nov. 1, when, it will be remembered, they were postponed in order to give the respective companies an opportunity of making such alterations as would abate the nuisance.

THE WESTERN GAS COMPANY.

This case having been called on, Mr. Wright, the engineer and manager of the company, and Mr. Barber, the secretary, appeared as before.

Mr. WOOLRYCH, the secretary, read the following report from Mr. Lovick, the engineer of the district:—

"REPORT ON THE WESTERN GAS COMPANY'S WORKS.

"Pursuant to the order of the Court of the 1st of November instant—that I should make an inspection of the Western Gas Company's premises at Kensal-green, and report what steps, if any, had been taken by this company for preventing the flow of gas tar, gas refuse, and gas washings, into the sewers of the commissioners—I have to report that on Friday, the 11th of November instant, I inspected the premises of the Western Gas Company, with the company's engineer, Mr. A. Wright.

"The existing drains on these premises are:—One running from the extreme north end, near the eastern boundary wall, to an outlet on the extreme south in a covered drain running parallel to the south fence, and discharging into the main sewer on the east of the railway bridge; one drain running round the interior of the walls of the gashouse, and discharging into the first-mentioned drain at about one-third the distance from its point of commencement; one six-inch pipe drain, immediately west of the outlet of the first-mentioned drain, said to be for to take only the drainage of the dwellings adjacent; and an overflow, said to be for surface drainage only, leakages, &c., from the gasometer into the open ditch on the west of the premises, and for drainage in the north, more particularly described hereafter.

"At the period of my inspection, the open ditch on the south and west sides of the company's premises outside of, and running parallel to, their fence, had been cleansed, and inverts formed to them, which work was then nearly completed. The drainage had been cut off from the first-mentioned drain, and was led into a long open reservoir, across which, at three different points, were sets of slates arranged with the intention of detaining the most noxious parts of the drainage, and of allowing only the fluid and purest portions to escape. This reservoir was intended to discharge its surplus waters through a drain into the open (now 'inverted') ditch, and at a point considerably higher, or more westward, than the former outlet. This arrangement was at the south-eastern part of the premises. On the west, at a point about midway, there was intended to be a similar arrangement, for this purpose chiefly, as it was explained to me.

"At the north-west angle, in a field outside the works, there is a deposit of the refuse lime from the processes carried on; and beyond that is a cesspool with the ordinary drainage. At times, foul drainage will be discharged from each of these sewers. These cesspools will overflow, and the rainwater may become impregnated with some of the noxious qualities of the refuse lime. This used to flow along the open ditch on the outside of the west fence, to the open ditch on the outside of the south fence. It is now, however, ccontemplated to lead this foul drainage *into* the company's premises, to discharge into the reservoir mentioned, there to detain the most offensive portions, having an overflow of the surplus waters into the open ditch at a lower point.

"Mr. Wright has informed me that the drainage from their works and premises will be chiefly the rain-fall into the area, and the general washings; the waste water resulting from the cooling of the coke, and the water from the gasometers and apparatus, when there is a renewal of the supply. But he positively asserts that, beyond these sources of drainage (including the drainage of the dwelling-house), there is none other—that there is no escape of tar, or of any residuum, other than in connection with the discharges above mentioned, and that there is no special overflow for this purpose into their drains, or into the common sewers; and my inspection does not enable me to invalidate this statement.

"On the whole, the company have greatly mitigated the noxious quality of the drainage from their premises, by the works which they have carried out; but I am not prepared to say that they have succeeded, or that they will succeed, upon the completion of the works which they are now executing, in entirely freeing their drainage from gas impregnation. I am, however, of opinion, that as the company has endeavoured, and is endeavouring, to conform to the requirements of the commissioners, it will be only reasonable to allow an extension of time, so as practically to test the efficacy of the completed works. "H. LOVICK.

"*Nov.* 14, 1853."

Mr. WOOLRYCH then read the following memorial upon the same subject from the inhabitants of Kensal New Town:—

"TO THE HONOURABLE COMMISSIONERS OF SEWERS.

"Gentlemen,—We, the undersigned, inhabitants of Kensal New Town, hereby declare that we have been frequently almost suffocated by the smell of gas arising from the Western Gas Company being permitted to allow their water, or some fluid used in the manufacture of gas, to escape into the sewers. If the company say the smell arises from the presence of animal or vegetable matter in the sewers, we reply that we only have a smell of gas when the wind is in a south-westerly direction—a proof that the nuisance is something distinct from the ordinary contents of the sewer.

"Medical gentlemen state that the inhaling of gas is detrimental to health. We, therefore, pray your Honourable Board to prevent our lives being jeopardised by the continuance of the nuisance.

"JOHN METCALFE. JOHN KAYS.
RICHARD SMITH. EDMUND HARRISON.
JOHN GODDARD. W. H. HAYNES," &c.

The CHAIRMAN said that he had received a letter from a medical gentleman residing in the neighbourhood of the Western Gas Company's works, confirming the representation which had been made at the last court by Mr. Wing, also a medical gentleman, and one of the deputation from Fulham, which waited on the commissioners on another matter, as to the injurious effect of the vapours caused by the discharge of gas refuse into the Kensington Canal, on the health of the inhabitants of that locality.

Mr. BARBER said that they were prepared on the last occasion with evidence from medical and scientific gentlemen, which would have completely disabused the minds of the commissioners of the erroneous impressions created by these misrepresentations. He hoped that the court would give the Western Company an opportunity of rebutting these statements.

The CHAIRMAN: I only thought it fair to read these complaints, that you might see what is said upon the matter. It appears now that the works which you have commenced, in order to remove this offence, are not yet completed; and we must, therefore, act upon the recommendation of our engineer, and adjourn the further hearing of the case until he is enabled to ascertain whether your arrangements will effectually remove the nuisance.

Mr. *Lovick* said, in reply to the Court, that a month would be a reasonable time for adjournment.

The CHAIRMAN: You will not be required to appear here again, of course, until you receive a fresh notice, which will be, in fact, a fresh procedure; but I cannot see that there is any necessity for dismissing this information, and having another summons.

Mr. WOOLRYCH said that the only question as to a fresh summons was, whether the Court intended, in case of the nuisance not being removed before the next inspection, to proceed against the company for their former acts, or for the continuance of the nuisance.

The CHAIRMAN: Mr. Lovick will inspect your premises again, in the course of a fortnight; and, if his report is favourable, we will not trouble you to appear here. If, however, he finds that the nuisance is not abated, you shall be served with notice to attend. The commissioners trust that you will be enabled to remove it; for, in the discharge of their public duty, they must see that the offence is entirely put an end to.

The case was, with this understanding, adjourned to the first court in December.

THE COMMERCIAL GAS COMPANY.

This case was called on, but no one appeared to represent the company.

Mr. WOOLRYCH read the following report from Mr. Roe:—

"REPORT ON THE COMMERCIAL GAS COMPANY'S WORKS.

"Pursuant to an order of the Court of the 1st instant, that I should inspect the drain passing from the premises of the above company, I have to state that the drain complained of is stopped up, and all communication with the sewer in Vincent-street cut off at this point; neither has any discharge taken place since the last court.

"*Nov.* 15, 1853." (Signed) "GEO. ROE.

The CHAIRMAN: Then there is not any necessity, I suppose, Mr. Roe, for taking any further steps in the matter?

Mr. *Roe:* No, sir. There is no opportunity of discharging their refuse into the sewers, unless they make another drain.

The summons was accordingly dismissed.

THE GREAT CENTRAL GAS COMPANY.

Mr. *A. H. Still*, the manager, appeared for this company.

Mr. WOOLRYCH read the following report from Mr. G. Roe:—

"REPORT ON THE GREAT CENTRAL GAS COMPANY'S WORKS, BOW-COMMON.

"In compliance with an order of the Court of the 1st instant, that I should inspect the branch drain within the premises of the above company at Bow common, openings have been made by order of the secretary, and I have seen the same. In one instance the interior of a six-inch drain clearly indicated that gas refuse had been discharged through it, but not at the time I inspected it. A discharge of a quantity of gas refuse took place on the 4th instant, at 9·45 A.M., a portion of which was collected on the south of the gas company's works. A quantity of water was also taken from the same line of drain on the north side, which is further proof that a discharge of gas refuse took place from the above premises between the two points in question. (Signed) "GEO. ROE.

"*Nov.* 15, 1853."

The CHAIRMAN: Well, Mr. Still, you see, Mr. Roe reports that there has been a discharge of refuse from your works since the last hearing.

Mr. *Still:* Well, it would appear so, from that report.

The CHAIRMAN: Well, what have you to say?

Mr. *Still* confessed that he did not know what to say, or how to explain the matter, until Mr. Roe pointed out to him a very simple way in which the discharge of refuse might have been inadvertently occasioned. It was, indeed, so very simple that he (Mr. Still) was happy that he could assure the court that, now that his attention had been directed to it, it should not occur again. Mr. Roe had pointed out that, by negligence on the part of any of the men, the tank which they used as a reservoir for water might be allowed to overflow, and thus carry the refuse down the drain. Mr. Roe had suggested that it would be very easy to put a float to this tank, with an indicator outside, so as to prevent any overflow; and, as there was not the slightest difficulty in carrying out that suggestion, he (Mr. Still) was sure that they should never again give any cause for complaint. He assured the court that any offence which might have been occasioned in this respect was entirely the fault of the servants, and that it was to the disadvantage of the company to lose any of this refuse, which they disposed of to such profit.

The CHAIRMAN: But you know, Mr. Still, that the company is answerable for the negligence of its servants. I understand you now, however, to give the court a distinct assurance that effectual measures will be taken to prevent the recurrence of such negligence on the part of your servants, resulting as it does to the offence of the public, and the detriment of the health of the inhabitants of that neighbourhood.

Mr. *Still:* I am sure it will not occur again, for every servant is fully aware that such negligence will be visited with instant dismissal.

The CHAIRMAN: Well, I hope that you will remove the nuisance entirely. You see that there have been for many months very serious complaints on this matter, and even representations from the Secretary of State; and, therefore, we must insist upon an entire and complete removal of the offence. We will take the assurance you have given us. We are perfectly satisfied that you are anxious to abate it, and to avoid offence; we will, therefore, deal with this case as we did with the Western Company. It will stand adjourned for a month, and, if our engineer reports its removal, we will not trouble you to appear here again.

Mr. *Still* said that he had reason to think that the Great Central Company had frequently fallen undeservedly under the lash, and that nuisances occasioned by other companies had been unjustly attributed to them.

The case was then adjourned on the same conditions as the Western Company's case.

DOWNPATRICK GAS COMPANY.

WORKING ACCOUNT FOR YEAR ENDING JULY 1, 1853.

RECEIPTS.			
Gas supplied to private consumers	£361	6	8
Gas supplied to public lamps	150	0	0
Meter rental	25	9	8
Coke, tar, and lime, sold	61	7	9
Fittings sold	0	17	6
	£599	1	7

EXPENDITURE.						
Paid for coals	£231	9	0			
On hand, July 1, 1852, 20 tons	11	6	8			
	242	15	8			
Deduct for on hand, July 1, 1853, 20 tons	12	6	8			
				230	9	0
Paid for lime				8	19	10
Paid for retorts	14	5	6			
On hand unset, July 1, 1852	17	0	0			
	31	5	6			
Deduct for on hand, July 1, 1853	11	5	6			
				20	0	0
Paid for gas meters				10	18	0
,, manager and stokers				105	13	0
,, general expenses				39	1	3
,, interest				2	3	4
Balance				181	17	2
				£599	1	7

Report of the Directors to the Seventh Annual General Meeting of Shareholders, held in the Office of the Company, on Aug. 5, 1853.

The directors now submit, for your inspection, an account of the receipts and expenditure of the company, for the year ending June 30.

During that period, the quantity of gas supplied to private consumers was 867,000 cubic feet; and to the town commissioners for the street lamps 600,000 feet, as near as could be ascertained; making in all 1,467,200 cubic feet: a quantity considerably greater than was sold in any former year.

The profit on the year's work was £181. 17s. 2d., out of which the directors recommend that a dividend of 4s. per share be declared, payable on and after Sept. 1 next.

The works of the company are in a satisfactory state, and require no immediate outlay.

The directors have to report that there is at present no contract in existence between the town commissioners and this company, for the supply of gas to the street lamps; the last arrangement being for but one year, ending on May 1.

The three directors, Messrs. Wallace, Stevenson, and Gilchrist; and Mr. Warnock, as auditor, now retire; they are, however, all eligible for re-election. (Signed)

JAMES QUAIL, Chairman of Directors.

Gas Works, Downpatrick, July 1, 1853.

CITY OF MELBOURNE GAS AND COKE COMPANY.

The third annual meeting of the shareholders of the above company was held on July 18 last, at the temporary office at the west end of Collins-street, Melbourne. About twenty persons were present.

Mr. N. GUTHRIDGE, having been moved to the chair, read the following report:—

"In presenting the third annual report to the shareholders, your directors have a more pleasing duty to perform than on any former occasion. They certainly cannot say they have accomplished the object for which the company was called into existence; but they can say, so much has been done as to give every hope that it will very soon be realised. It was anticipated at the last annual meeting that the bill of incorporation, to be presented to the Legislative Council, would be favourably received. Such has been the fact. It passed through the House as amended, and

received the assent of his Excellency the Lieutenant-Governor on Jan. 12, 1853. Having obtained the act of incorporation, your directors proceeded to enter into a contract with Messrs. Westgarth, Ross, and Co., of this city, for the necessary works, who are to secure the most recent and best improvements. A letter recently received states that everything was in a state of forwardness, and would be despatched without delay. In anticipation of their speedy arrival under the superintendence of a competent engineer, your directors have entered into a contract for enclosing the land, and other operations necessary to prepare the premises intended to receive the plant when it arrives. They have also felt it incumbent upon them to contract for such a supply of gas-fittings from England as will enable the company to meet any emergency that may arise in that department. With regard to the capital of the company, your directors have to state that the whole of the 4000 original shares, representing the sum of £20,000, have been disposed of. It may, however, be proper here to suggest that, with the unparalleled increase in both the population and extent of the city, which was altogether unexpected when this company was formed, it will scarcely be thought probable that a capital of £20,000 will enable the company to carry its mains through either its length or breadth. It is therefore worthy of the mature consideration of the shareholders, whether it would not be prudent, at an early period, to take advantage of a provision made by the 58th clause of the act of incorporation for that purpose, to increase the capital of the company to £40,000. This might be so arranged as to be both equitable and advantageous to the present holders of shares. In conclusion, your directors are happy to say that they cannot but regard the prospects of the company as most satisfactory. The balance-sheet will show that, whilst considerable liabilities have been incurred, the funds in hand, with the proceeds of the call which will become due on the 5th of August next, will be sufficient to meet them.

"The following directors retire by rotation:—Messrs. J. Trenchard, F. Cooper, S. Argyle, J. Pittman, W. Williamson, and R. Kerr. The places of these gentlemen you will be called upon to supply at this meeting. It will also be necessary to nominate two other gentlemen to act as auditors for the ensuing year."

The following statement of the accounts of the company was then submitted:—

Gas and Coke Company. From June 30, 1852, to June 30, 1853.
Abstract of Account.—The Directors in account with the City of Melbourne

Dr.—To calls and deposits..	£6714 10 0	*Cr.*—By building	£600 0 0
To balance from late secretary.....	33 11 6	By timber	96 10 0
		By carpenters.....	62 16 8
To ditto in the Bank of Australasia.....	324 5 2	By printing.....	265 16 9
		By salary	216 13 4
		By plans	13 14 0
		By sundries	7 1 0
			£1262 10 9
		Cash balance in favour of the company.....	£5809 15 11
	£7072 6 8		£7072 6 8

Audited the 15th day of July, 1853, and found correct.
(Signed) JOHN BROWNING.
JOHN MILLER.

After the reading of the above documents,

Mr. R. CLOWES complained generally of the great delay that seemed to have occurred in the proceedings of the company, which was satisfactorily explained by the secretary and the deputy-chairman, Mr. Trenchard, who referred to the great difficulty the directors had encountered at the time of the discovery of the gold-fields, caused partly by the reluctance of many of the shareholders to respond to the calls.

It was also explained by the secretary, that the part of the city comprised in the plan sent to England for tenders for a first plant, which may be expected to commence arriving immediately, would be that portion contained between the Wesleyan Chapel on the west, the *Argus*-office on the east, Bourke-street on the north, and Flinders-street on the south.

On the motion of Mr. BLAND, seconded by Mr. BROWNING, the report was unanimously adopted.

The meeting then proceeded to the election of six gentlemen to serve as directors, in the place of the following, who retire by rotation:—Messrs. J. Trenchard, F. Cooper, S. Argyle, J. Pitman, R. Kerr, and W. Williamson. As none are eligible to serve as directors who have not signified their willingness to do so fourteen days before the time of election, and only six had complied with this regulation, the election fell upon them, viz., Messrs. Trenchard, Cooper, Pittman, J. Bland, Argyle, and J. Lewis.

On the motion of Mr. COOPER, seconded by Mr. CLOWES, Messrs. Browning and J. Miller were elected auditors for the ensuing year.

Attention was then drawn to a bill of costs from Mr. W. U. Tripp, which was generally considered exorbitant. It was a bill for getting the company incorporated by the Legislative Council, and amounted to the very moderate sum of £455. 6s. 2d. Mr. Tripp was present, and said that he was not aware that there was a single item charged to which he was not fairly entitled, while many things had been done without making any charge at all. He regretted that unpleasant remarks had been made in the matter before proper inquiry had been instituted; and stated his willingness to leave it to arbitration, which course, after considerable discussion, it was determined to adopt, Mr. J. M. SMITH expressing his conviction that there were many charges in the bill which ought not to be allowed.

A substantial blue stone wall is in course of erection round the land of the company, which extends from Collins to Little Flinders street, near Langland's foundry.

ADVANCE IN THE PRICE OF GAS.—The Gravesend Gas Company has given notice of their intention to advance the price of gas from 4s. 6d. to 5s. per 1000 feet at Christmas next. The two Woolwich companies are also discussing the propriety of advancing it from 4s. 6d. to 5s. 6d.

PERKINS'S PATENT CORE BARREL.—This invention has been successfully introduced into several iron foundries, and, from an examination of the pipes manufactured by it, we can confirm all the inventor states as to their smooth interior surface and uniform thickness. On the ground of economy alone, it ought to be adopted by every pipe founder, independent of the consideration of the superiority of the article manufactured.

KINGSTON-ON-THAMES.—The gas works of this town, which have hitherto belonged to private individuals, have been recently sold to Mr. R. P. Spice, of Richmond, on account of a company formed under his direction.

WOODSTOCK GAS COMPANY.—This company commenced its operations on the 23rd ult., and the different houses and street lamps were lighted with cannel-coal gas in a most satisfactory manner. Mr. T. A. Hedley, of Banbury, under whose superintendence the works have been erected, has been appointed consulting engineer to the company.

MATLOCK BATHS.—The directors of the Matlock Baths Gas Company have entered into an arrangement with Mr. G. E. Peters, of Peterborough, for the completion of their works, &c.

EMSWORTH.—The gas works in this town, which have been erected by the Provincial and Continental Gas Consumers' Company, of Mark-lane, London, were put in operation and the town successfully lighted on the 24th ult. For neatness, compactness, and efficiency, combined with economy of construction, they are reported by competent authorities to bear a high character.

SHEFFIELD CONSUMERS' GAS COMPANY.—It is announced that Messrs. H. Vickers and A. C. Branson have ceased to be the solicitors of this company, having been replaced by Mr. Broadbent; and, as the London agent of one of their late solicitors is Mr. Croll's attorney, it is presumed the Flintoff section of the directors has triumphed, and the Croll combination been, consequently, defeated.

FATAL ACCIDENT TO MR. J. O. CULYER.

A terrible instance of foolhardy imprudence occurred on the 2nd instant, at the gas works just erected for the lighting of New Brompton and Gillingham, two villages in the neighbourhood of Chatham. The works had been constructed under the superintendence of Mr. J. O. Culyer, a person who had already erected numerous other small gas works in various parts of the country. He called at our office in the afternoon of the 2nd, to inform us that the works were to be set in operation on the following day, and to request us to notice the fact. It appears that, on arriving at the works, he applied a light to a pipe fixed on the crown of the gasholder, and that an explosion ensued, causing his own death, and that of Richard Hall, a workman who assisted him.

The Coroner held an inquest at the Green Dragon, Gillingham, on Dec. 5, on the bodies of the two unfortunate men.

The jury, having been sworn, proceeded to view the bodies, which lay in the retort-house at the gas works. The effects of the explosion had been most complete. The gasometer appeared as if broken in half, the ironwork having collapsed. The brickwork of the tank in which the gasometer floated was destroyed in several places, and three of the guide-rods broken off. About nine feet of water were in the tank at the time of the accident.

Mr. *Weeks*, surgeon, was the first witness called. He said he was sent for to attend at the gashouse on Friday night, in consequence of an explosion having occurred. On arriving there the body of the deceased Culyer was shown him. It was lying in the retort-house. The body of Hall had not then been recovered. Witness was informed that the deceased had been taken out of the tank, having been thrown in by the explosion. On making an external examination, witness found a severe bruise on the right side of the head, though he did not deem it of sufficient force to cause death. In his opinion death was caused by drowning. The blow on the head, no doubt, stunned him, and prevented his swimming.

John James Rickon was the next witness examined: In answer to questions put by the Coroner he said—I am the manager of the gas works at Gillingham, which had been just erected. On Friday last we commenced forcing the gas into the holder, previous to testing it. We had commenced making the gas that morning at four o'clock. At about nine o'clock in the evening I was in the retort-house, talking with a workman with regard to blowing off the air from the gasholder and the mains. After having driven in the third charge, which we hoped would force the crown of the holder out, the workman walked out, and soon after I heard a "clang" of the crown, which the man said was a "good sound." There was a burner in the retort-house, which we tried to light, but could not succeed. The deceased Hall and myself then went on the gasholder, and considered everything was going on safely, as the crown of the holder was lifting with the pressure. I perceived no leakage nor anything wrong. The deceased Culyer, whom I had not seen there since Monday, then came into the retort-house. We did not expect him that evening. He was in very high spirits, but perfectly sober. He began laughing and joking, and soon after called for a candle. A candle was found and given to him, with which he tried to light the burner, but could not succeed. Deceased remarked the burner was not connected with the inlet through which we were passing the gas. I told him if he would wait till the pressure came on we should be able to light it. Deceased then took the candle and went out. I kept my seat, but felt a peculiar sense of dread come over me when I saw him go. I heard him directly after call for the deceased Hall. In a few minutes Hall came back and asked for the key of the tap of the stand-pipe, which was used expressly for blowing the holder off. Hall took the key, and I followed him to the door, and Culyer and Hall went on to the top of the holder. I saw Hall turn the cock on, and Culyer apply the light. A very small beautiful blue flame appeared, about the size of a pea. The deceased put it out, and both came down again. After conversing for a short time, Culyer again applied a light to the burner in the retort-house, and, finding it did not light again, ascended to the top of the holder. On his returning, I asked Hall if he thought there was any dirt in the connecting pipe. Hall said he thought not. Culyer and Hall then went a third time and tried the same experiments with the lighted candle. I observed Hall put up his hand to turn the cock on, and after a few seconds a blue flame appeared. I saw no flame appear from the pipe, but the light of the candle appeared to turn into the

(*Continued on last page but one.*)

Share List.

(Directors and Managers of Gas Works are earnestly requested to enable us to rectify the errors and fill up any omissions in the following List.)

The Companies whose names are printed in italic type are incorporated by Act of Parliament.

Number of Shares issued.	Amount per Share	Name of Company.	Amount paid up per Share	Dividend per Cent. per Ann.	Price.
	£	**ENGLAND.**	£ s. d	£ s. d	£ s. d
		Aberdare			
		Abergele			
		Aberystwith			
		Abingdon			
1050	10	*Accrington*	10 0 0	7 0 0	15 10 0
		Albrighton			
		Alcester			
		Alford, Lincolnshire			
		Alfreton			
		Alnwick			
		Alston Moor			
250	10	Alton	10 0 0	5 0 0	10 0 0
800	5	Altrincham	5 0 0	6 0 0	
170	10	Ampthill	10 0 0	5 0 0	10 0 0
350	10	Andover	10 0 0	5 0 0	11 0 0
330	5	Appleby	5 0 0	3 0 0	2¼ to 2½
		Arundel			
		Ashbourn, Derby			
292	5	Ashburton	5 0 0	5 0 0	
		Ashby-de-la-Zouch			
		Ashford, Kent			
1600	25	*Ashton-under-Lyne*	25 0 0	10 0 0	52 0 0
		Atherstone			
		Axminster			
200	20	Aylesbury	20 0 0	5 0 0	21 0 0
		Aylsham, Norfolk			
		Bacup, Lancashire			
		Bakewell			
200	10	Baldock	10 0 0	5 0 0	10 0 0
140	25	Banbury	25 0 0	10 0 0	50 0 0
		Bangor			
500	5	Barking, Essex	5 0 0	5 0 0	5 5 0
260	10	Barnard Castle	10 0 0	5 10 0	10 15 0
		Barnsley £6000		7 10 0	
100	20	Barnstaple	20 0 0	5 0 0	23 0 0
1158	2	Barton-on-Humber	2 0 0	5 0 0	2 0 0
120	25	Basingstoke	25 0 0	7 0 0	35 0 0
2500	20	*Bath*	16 0 0	10 0 0	30 to 32
		Battle £2000		6 0 0	
58	26½	Bawtry	26 10 0	5 0 0	25 0 0
300	30	Bedford	25 0 0	4 0 0	20 0 0
200	10	Bedworth	10 0 0	5 0 0	11 0 0
		Belford			
		Bedale, Yorkshire			
		Belper			
		Beminster			
420	5	Berkhempstead	5 0 0	6 0 0	6 0 0
700	10	Berwick-on-Tweed	10 0 0	6 0 0	12 0 0
		Beverley			
		Bewdley			
280	10	Bideford	10 0 0	6 0 0	10 10 0
		Biggleswade			
170	10	Bicester	10 0 0	6 0 0	11 5 0
		Bilston £15,100		7 0 0	
		Billericay			
		Bingley £7400		4 0 0	
		Birkenhead £70,000	35 0 0	3 0 0	35 to 37
2400	50	*Birmingham and Staffordshire*	50 0 0	10 0 0	104¼
2400	25	*Ditto*, new shares	10 0 0	10 0 0	12 pm.
928	75	*Birmingham*	75 0 0	10 0 0	158 to 160
		Bishop's Auckland			
140	25	Bishop's Stortford	25 0 0	5 0 0	24 0 0
3000	15	*Blackburn*	15 0 0	10 0 0	
		Blackpool			
		Blandford			
		Blythe			
		Bodmin			
		Bognor			
3909	16½	*Bolton*	16 10 0	9 19 5	39 0 0
		Boroughbridge			
160	50	*Boston*	50 0 0	10 0 0	75 0 0
200	10	Bourn	10 0 0	5 0 0	10 0 0
160	10	Brackley	10 0 0		
		Bradford, Wilts			
		Bradford, Yorksh. £45,000		9 10 0	
		Brampton, Cumberland			
		Brandon, Suffolk			
		Brecon			
		Bridge-end, Glam.			
6000	5	*Brierly Hill*	5 0 0	4 0 0	5 2 6
		Brighouse			
2250	20	*Brighton*	20 0 0	5 0 0	15 to 16
1125	0	,, new shares	16 0 0	5 0 0	10 to 12
2171	20	*Brighton and Hove*	20 0 0	3 10 0	
107	8	,, new shares			
179800	Stk.	*Bristol United*	Stock	9 0 0	170 to 175
154	8	Brixham	8 0 0	5 0 0	5 to 6
		Braintree			
750	50	*Brentford*	50 0 0	5 10 0	48 to 50
800	25	,, new shares	11 0 0	5 10 0	11 0 0
		Brentwood			
200	30	*Bridgwater*	30 0 0	5 0 0	30 0 0
400	10	Bridlington	10 0 0	5 0 0	10 0 0
		Bridport			
		Brigg			
		Broadstairs			
100	50	Bromley, Kent	50 0 0	6 0 0	52 10 0
		Bromsgrove			
		Broughton			
120	10	Bruton	10 0 0	4 0 0	8 0 0
		Brynmawr			
100	25	Buckingham	25 0 0	6 0 0	28 0 0
		Burnley £19,946		4 10 2	
		Burslem&Tunstall			
		Burton-on-Trent			
		Bury, Lanc. £6570			
		Bury St. Edmund's		5 0 0	
200	10	Buxton	10 0 0		
		Callington			
		Calne, Wilts			
		Camborne			
		Cambridge £34,500		7 0 0	
240	50	*Canterbury*	50 0 0	6 0 0	61 to 63
240	25	*Ditto*, second issue	25 0 0	6 0 0	30 to 31
		Cardiff £12,000		7 10 0	
		Carmarthen			
		Castle Cary			
249	5	Castleford	5 0 0	5 0 0	5 0 0
300	5	Castletown (Man)	2 0 0		
		Chapel on the Frith			
		Chard			
		Chatteris			
255	10	Cheadle	10 0 0	5 0 0	10 0 0
200	50	Chelmsford	50 0 0	5 0 0	84 0 0
		Cheltenham £18,732		8 10 0	
		Chepstow			
		Chertsey			
230	10	Chesham, Bucks	10 0 0	5 0 0	10 0 0
		Chester			
250	5	Chester-le-Street	5 0 0	6 0 0	5 0 0
		Chesterfield £13,123		4 17 6	
240	25	Chichester	25 0 0	6 0 0	30 0 0
		Chippenham			
		Chipping Norton			
		Chorley			
		Christchurch			
		Cirencester			
		Clare (Suffolk)			
		Cleckheaton, York.			
		Clitheroe			
750	4	Cockermouth	4 0 0	7 0 0	5 0 0
		Colchester			
		Collumpton			
		Colne, Lancashire			
		Coleford, Gloucest.			
300	5	Coggeshall	5 0 0	3 0 0	3 0 0
200	25	*Congleton*	25 0 0	5 0 0	31 0 0
		Cowbridge			
		Corsham			
800	25	*Coventry*	25 0 0	6 0 0	24 to 25
		Cowes			
300	5	Crowland			
		Croydon ... £20,000		5 0 0	
		Cranbrook ... £1900		5 0 0	
		Crayford & Bexley			
420	5	Crediton	5 0 0	5 0 0	6 0 0
		Crewe, Cheshire			
		Dalton			
		Darlaston			
		Darlington			
250	20	Dartford	20 0 0	7 10 0	27 0 0
125	20	Daventry	20 0 0	6 0 0	24 8 0
		Dawley, Salop			
316	5	Dawlish	5 0 0	8 0 0	7 10 0
		Deal			
		Dedington			
500	6	Denbigh	6 0 0	5 0 0	6 0 0
829	10	*Deptford*	10 0 0		1 to 2
325	50	*Derby*	50 0 0	10 0 0	78 0 0
93	20	Dereham (East)	20 0 0	5 0 0	21 0 0
4000	5	*Dewsbury*	5 0 0	7 0 0	8 12 6
		Devizes			
7000	5	*Devonport*	5 0 0	6 0 0	6 5 0
280	25	Dorchester	25 0 0	5 0 0	30 0 0
120	25	Dorking	24 0 0	5 0 0	25 0 0
192	25	Douglas, Isle of M.	25 0 0	8 0 0	30 0 0
209	56¼	*Dover*	56 10 0	5 15 0	71 to 72
25	60	Downham	60 0 0	7 10 0	
		Driffield			
		Droitwich			
600	20	*Dudley*	20 0 0	4 0 0	28 to 30
		Droylsden			
1000	10	Dukinfield			
		Dunmow			
250	10	Dunstable	10 0 0	5 0 0	8 0 0
		Durham			
270	9	Dursley, Gloster	9 0 0	5 10 0	8 0 0
300	10	Eastbourne			
		East Grinstead			
		Egremont, Cumbld			
703	6¼	Elland	6 10 0	8 0 0	10 0 0
		Ellesmere			
200	10	Emsworth			
400	5	Enfield	5 0 0	5 0 0	5 0 0
360	19	Epsom and Ewell	19 0 0		
		Eton			
		Evesham			
1600	25	*Exeter*	25 0 0	8 0 0	45 0 0
		Exmouth			
		Eye, Suffolk			
150	10	Fairford	10 0 0		
61	25	Fakenham	25 0 0	5 0 0	25 0 0
		Falmouth			
105	36	Fareham	30 0 0	2 10 0	30 0 0
120	25	Farnham	25 0 0	10 0 0	42 0 0
		Farringdon			
		Faversham			
	5	Filey	5 0 0	5 0 0	5 0 0
		Fleetwood			
300	10	Folkestone	10 0 0	10 0 0	15 0 0
240	10	,, new shares	8 0 0	10 0 0	13 0 0
		Fowey			
		Fordingbridge			
	5	Framlingham	5 0 0	5 0 0	5 0 0
		Frome			
		Gillingham, Dorset			
		Glastonbury			
		Glossop ... £10,000		9 0 0	
1000	25	*Gloucester*	25 0 0	7 10 0	28 0 0
516	5	Gomersal	5 0 0		
		Godalming			
350	10	Gorleston & Southdown	2 10 0		2 10 0
		Gosport			
450	20	Grantham	20 0 0	7 0 0	28 0 0
1000	20	Gravesend	20 0 0	5 0 0	21 0 0
		Grays (Essex)			
1000	10	*Great Grimsby*	9 10 0	8 0 0	13½ to 14
		Great Torrington			
360	5	Guildford	25 0 0	4 0 0	20 0 0
600	25	*Halifax*	25 0 0	10 0 0	48 0 0
		Halstead			
		Hampton Court			
1000	10	*Harrogate*	6 5 0	5 0 0	6 5 0
	5	*Hartlepool* £15,137	5 0 0	7 10 0	7 12 6
540	6	Haslingden, Lansh	6 0 0	7 10 0	6 0 0
330	50	Hastings and St. L.	50 0 0	6 0 0	60 0 0
500	5	Havant			
		Haverhill			
		Haworth, Yorks.			
		Hayle			
4965	1	Hebden Bridge	12 6		15 0
		Helstone			
250	10	Hemel Hempstead	10 0 0	4 0 0	6 10 0
300	10	Henley-on-Thams.	10 0 0		
		Hereford £5300		4 0 0	
300	10	Herne Bay	10 0 0	6 0 0	11 0 0
270	10	Hexham	10 0 0	7 0 0	12 0 0
400	25	*Heywood*		7 10 0	
		Highworth (Wilts)			
230	10	Hinckley	10 0 0	5 0 0	9 0 0
		Hindley, Lancash.			
200	20	Hitchen	20 0 0	5 0 0	20 0 0
100	10	Hythe & Sandgate	10 0 0	6 0 0	11 0 0
		Hoddesden			
		Holbeach			
		Holmfirth £8880		3 10 0	
		Holyhead			
		Holywell (see Brit. Provincial			
95	25	Honiton	25 0 0	4 0 0	17 0 0
		Horbury			
6	500	Horncastle	500		
1200	2½	Horsforth	2 10 0		2 10 0
128	20	Horsham	20 0 0	5 0 0	
	10	Houghton-le-Sprg.	10 0 0	8 0 0	
		Howden			
		Hull, Sculcoats (see Brit. Provincial)			
		Hull, £11,712. 10s.		5 0 0	
210	10	Hungerford	10 0 0	5 0 0	10 0 0
		Huddersfield			
520	5	High Wycombe	5 0 0	6 0 0	6 16 0
		Idle and Eccleshill			
400	61	Ilkeston	6 5 0	3 10 0	6 5 0
		Ilminster			
		Ilford			
		Ilfracombe			
		Ironbridge			
1400	10	*Ipswich*	10 0 0	8 0 0	15 0 0
1400	10	,, new shares	7 10 0	8 0 0	12 10 0
800	25	*Isle of Thanet*	20 0 0	5 0 0	20 to 21
		Kendal £9100		8 15 0	
300	10	Kenilworth	7 10 0		7 10 0
400	5	Keswick	5 0 0	4 5 0	4 4 0
100	25	Kettering	25 0 0	5 0 0	25 0 0
		Kiddermins. £10000		5 0 0	
		King's Langley			
		Kington, Hereford			
		Kirkby Lonsdale			
		Kirkham, Lanc.			
		Knighton			
		Knutsford			
		Lancaster			
		Llanelly £3000		5 0 0	
		Llandovery			
		Leamington Priors £22,500		6 0 0	
160	10	Leatherhead	10 0 0		
		Ledbury			
	25	*Leeds Old Comp.* old stk., £60,300	25 0 0	10 0 0	46 to 47
	25	,, new ,, £23,775	25 0 0	6 0 0	29 to 30
	20	*Leeds New* £60,000	20 0 0	10 0 0	36 to 38
		Leek			
3623	10	*Leicester*	10 0 0	7 0 0	15 0 0
		Leigh			
135	20	Leighton Buzzard	20 0 0	6 0 0	20 0 0
490	10	Leominster	9 0 0	5 0 0	8 0 0
		Leyburn, Yorksh.			
240	5	Liskeard	5 0 0	8 0 0	6 0 0
330	25	Lewes	25 0 0	5 0 0	25 0 0
320	25	*Lincoln*	25 0 0	10 0 0	48 0 0
		Leyland, Lancash.			
240	5	Littlehampton	5 0 0	7 10 0	5 0 0
250	20	Lichfield	20 0 0	10 0 0	35 0 0
		Liverpool United	100 0 0	10 0 0	208 to 210
		,, ¼ sh.	25 0 0	10 0 0	52 to 53
50	25	Langport	25 0 0	4 0 0	15 0 0
		London Comps.—			
5000	10	Anglo-Romano	7 10 0		7 10 0
5000	20	British Provincial (Holywell, Hull, Norwich, Potteries, Trowbridge)	20 0 0	7 0 0	22 to 23
	20	,, Prov., new	16 0 0	7 0 0	20 to 21
4000	25	*Commercial*	25 0 0	6 0 0	26 to 28
2000	25	,, new shares	2 10 0	6 0 0	part to 1pm
		,, deb. £12,000			
12,000	50	*Chartered*	50 0 0	4 0 0	38 to 40
6000	50	,, new shares	10 0 0	4 0 0	7¼ to 8¼
2000	150	*City of London*	150 0 0	4 0 0	130 to 132½
4000	50	*Equitable*	50 0 0	2 10 0	26 to 28
		,, deb. £16,000			
10,000	20	European— (Amiens, Boulogne, Caen, Havre, Nantes, & Rouen)	20 0 0	5 0 0	12 to 15
	20	,, do. new	7 10 0	5 0 0	9 to 10
2000	20	*Gt. Cntl. Consumers*	10 0 0	7 10 0	12 to 12½
15,000	10	deb. £66,000			

Number of Shares issued.	Amount per Share	Name of Company.	Amount paid up per Share	Dividend per Cent. per Ann.	Price.
	£		£ s. d	£ s. d	£ s. d
8000	50	*Impl. Continental* —First capital (Amsterdam, Berlin, Ghent, Hanover, Lille, Rotterdam)	42 0 0	6 11 0	48 to 50
7000	50	Second capital—(Aix la Chapelle, Antwerp, Bordeaux, Brussels, Cologne, Frankfort-on-Maine, Haarlem, Marseilles, Toulouse Vienna)	41 0 0	10 7 0	70 to 72
	50	Third capital	43 10 0	9 4 0	68 to 70
10,000	50	*Imperial*	50 0 0	6 & bon.	85 to 87
3000	50	„ new shares	45 0 0	6 & bon.	80 to 82
		„ deb. £50,590			
4000	40	*Independent*	40 0 0	6 0 0	46 to 47
5000	50	*London*	50 0 0		5 0 0
1000	50	„ (red)	50 0 0		
2000	50	„ (blue)	50 0 0	3 0 0	15 to 18
6000	25	„ (preference)	25 0 0	6 0 0	25 to 26
9000	50	*Phœnix*	49 0 0	3 10 0	27½ to 28½
1000	100	*Ratcliff*	90 0 0	5 0 0	70 to 75
4000	25	*South Metrop.*	25 0 0	5 0 0	21 to 22
7000	10	Surrey Consumers'	10 0 0	7 0 0	10 0 0
9000	50	United Genl. (Cork, Dublin, Limerick)	50 0 0	2 0 0	21 to 22
6410	20	Western A shares	20 0 0	3 0 0	13 to 14
3500	20	„ B „	11 0 0	3 0 0	3 0 0
		Lostwithiel			
		Loughborough			
240	25	*Louth*	25 0 0	6 0 0	26 10 0
2500	10	*Lowestoft (& Water)*			
		Llangollen			
611	5	Ludlow Union	5 0 0	5 0 0	5 0 0
		Luton			
		Lutterworth			
63	20	Lyme Regis	20 0 0	4 0 0	20 0 0
120	25	Lymington	25 0 0	5 0 0	25 0 0
200	10	Malmesbury	10 0 0	2 10 0	5 15 0
		Macclesfield 32,000		3 15 0	
		Maidenhead			
300	50	*Maidstone*	50 0 0	10 0 0	90 0 0
160	40	Maldon	23 0 0	5 10 0	24 0 0
		Marlborough			
		Malton (New)			
		Malvern			
		Manningtree			
		Mansfield £5000		10 0 0	
		March			
		Margate (see I. of T.			
		Market Deeping			
		Market Drayton			
132	25	Market Harboro'	25 0 0	6 0 0	34 0 0
		Market Raisin			
		Market Weighton			
210	10	Marlow	10 0 0	5 0 0	10 0 0
370	10	Maryport	10 0 0	6 0 0	12 0 0
500	5	Matlock Baths	5 0 0		
		Melksham			
		Melton Mowbray			
		Merthyr Tydvil			
50	10	Mere	10 0 0		
		Middleton £9039		5 0 0	
		Midsummer Norton			
		Middlesboro'			
198	5	Mildenhall	5 0 0	5 0 0	5 0 0
700	10	Mitcham	10 0 0	10 0 0	14 10 0
650	5	Mold (and Water)	5 0 0	6 0 0	6 10 0
700	10	Monmouth	10 0 0	5 0 0	
		Monk Wearmouth			
150	10	Moreton in Marsh	10 0 0	3 10 0	
		Morley (nr. Leeds)			
		Mottram			
220	16	Morpeth	16 0 0	5 0 0	17 10 0
		Nantwich			
		Neath			
183	10	Needham Market	10 0 0	4 0 0	
		Newark £5000		10 0 0	
250	20	Newbury	20 0 0	5 0 0	20 0 0
13,000	5	Newcastle & Gateshead Union	5 0 0	8 0 0	7 12 6
		Newcastle-under-Lyne £6200		4 0 0	
600	5	Newmarket	5 0 0	6 0 0	5 0 0
		Newnham, Glost.			
250	5	Newent	5 0 0		
		New Mills £2115			
		Newport, M. £11720		8 0 0	
320	50	*Newport, Isle of W.*	38 0 0		5 0 0
		Newport Pagnell			
		Newport, Salop			
		New Romney			
		Newton Abbot			
		Newton, Lanc.			
		Newtown (Mntgom.			
		Northallerton			
120	10½	North Walsham	10 10 0	5 0 0	10 10 0
542	20	*Northampton*	18 0 0	10 0 0	31 0 0
		Northwich			
		Norwich (see British Pro. £40,000		7 0 0	
900	50	*Nottingham*	50 0 0	10 0 0	
900	50	New shares		10 0 0	
		Nuneaton			
170	10	Oakham	10 0 0	4 10 0	8 10 0
		Oakhampton			
200	10	Odiham, Hants	10 0 0	4 0 0	9 0 0
		Olney			
100	10	Ongar	10 0 0	2 10 0	5 0 0
658	10	*Ormskirk*	7 10 0	5 0 0	
		Otley, Yorkshire			
80	25	Oundle	25 0 0	7 0 0	25 0 0
130	150	*Oxford*	150 0 0	6 10 0	230 0 0
		Over Darwen £8000		5 0 0	
		Padstow			
		Pately Bridge, Yrk.			
		Pembroke			
250	20	Penrith	15 0 0	6 10 0	21 0 0
		Penryn			
		Penzance			
200	10	Petworth	10 0 0	9 10 0	14 15 0
		Petersfield			
		Pickering			
3000	10	*Plymouth*	10 0 0	8 0 0	15 0 0
		Pocklington			
		Pontefract			
		Pontypridd		4 0 0	
400	10	Poole	10 0 0	5 0 0	10 0 0
		Port Madoc			
600	50	*Portsea Island*	53 0 0	5 0 0	51 to 52
		Potton			
400	10	Prescott	9 0 0	4 13 4	7 0 0
3000	20	*Preston*	20 0 0	10 0 0	
		Pudsey £12,000		5 0 0	
		Quordon & Montsrl			
		Radcliff and Pilkington £9000		4 12 10	
		Ramsay, I. of Man			
		Ramsgate (see I. of T			
1000	10	*Reading*	10 0 0	4 0 0	7 0 0
500	20	*Reading Union*	20 0 0	4 0 0	17 0 0
		Redditch			
		Redruth			
		Reigate			
		Retford (East)			
		Rhyl			
		Richmond (Surrey)			
400	5	Rickmansworth	5 0 0		5 0 0
180	10	Ringwood	10 0 0		10 0 0
		Ripon			
		Roches. & Chatham		6 0 0	
		Rochford [£20,000			
		Rockingham			
		Romford			
		Ross			
215	25	*Rotherham*	25 0 0	6 0 0	39 to 40
	12½	do. Half Shares	12 10 0	6 0 0	19 to 20
		Royston			
		Rugby			
500	10	Rugeley	8 10 0	5 0 0	10 10 0
		Runcorn ... £11,000		7 10 0	
		Ruthin			
500	10	Ryde	10 0 0	6 0 0	12 0 0
		Rye			
		Romsey			
		Saddleworth			
225	20	Saffron Walden	20 0 0	3 15 0	19 0 0
		St. Alban's			
		St. Austel			
		St. Asaph			
		St. Colomb			
		St. Helen's £7500		7 10 0	
		St. Helier's (Jersey)			
		St. Ives, Hunting.			
		St. Ives, Cornwall			
250	10	St. Neot's	10 0 0	8 0 0	12 0 0
		St. Peter's Pt., Guer			
320	25	Salisbury [nsey	25 0 0	6 0 0	28 to 30
317	10	Sandbach	10 0 0	5 0 0	12 0 0
140	10	Saxmundham	10 0 0	5 0 0	10 0 0
		Scarborough	10 0 0		13 0 0
201	5	Sedburgh	5 0 0	2 10 0	4 15 0
300	16	Selby	16 0 0	5 0 0	16 0 0
		Settle			
290	10	Sevenoaks	10 0 0	4 0 0	10 0 0
250	10	Shaftesbury	10 0 0	3 0 0	9 0 0
5400	25	*Sheffield Utd.*	24 0 0	7 10 0	26 to 27
		Shelton, Potteries (see Brit. Prov.)			
		Shepton Mallet			
600	5	Sherborne	5 0 0	5 0 0	5 0 0
2914	5	Shields (Tynemth. Shields (South)	5 0 0	5 0 0	5 17 6
		Shiffnal, Salop			
1000	5	*Shipley*	5 0 0	6 0 0	7 10 0
159	10	Shipston-on-Stour	10 0 0	5 0 0	10 0 0
		Shorcham			
		Shrewsbury £10,000		7 0 0	
400	10	Skipton	10 0 0	4 0 0	11 0 0
		Sleaford			
250	10	Slough	10 0 0		
		Snaith			
		Soham			
		Southam			
		Southend, Essex			
300	5	Southwold [Bdge)	5 0 0	5 0 0	5 0 0
2000	5	South Essex (Lea			
		South Molton			
1000	50	*Southampton*	32 0 0	5 0 0	
		Sowerby, Yorksh.			
		Spittal (Berwick-			
400	5	Spilsby [on Tweed)	5 0 0		
		Staindrop			
		Stretford			
		Stokesly			
		Stafford £10,000		5 0 0	
		Staines and Egham			
		Staley Bdg. £15,000		10 0 0	
225	50	*Stamford*	50 0 0	4 0 0	48 0 0
840	9½	*Stockton-on-Tees*	9 10 0	9 0 0	11 to 12
1000	10	Stoke-upon-Trent	10 0 0	7 0 0	12 15 0
500	10	„ new shares	8 0 0	7 0 0	10 10 0
		Stone, Stafford			
		Stoney Stratford			
		Stourbridge			
		Stowmarket			
150	20	Stratford-on-Avon	20 0 0	7 10 0	30 0 0
		Stroud			
169	10	Swaffham	10 0 0	5 0 0	5 10 0
		Swansea £9000			
		Sudbury			
6400		Sunderland, old			
	5	*Sunderland*, new	5 0 0	5 0 0	6 12 6
		Sutton Coldfield			
		Sutton (Surrey)			
250	10	Sutton-in-Ashfield	10 0 0	5 0 0	10 0 0
		Sutton Southcoates & Drypool (Hull)	20 0 0		23 to 24
		Swindon			
1000	10	Sydenham	10 0 0	6 0 0	11 0 0
2800	5	*Taunton*	5 0 0	6 0 0	6 0 0
		Tadcaster			
		Tamworth			
		Tavistock			
200	5	Tenbury	5 0 0	5 0 0	5 0 0
		Tenby			
150	10	Tenterden	10 0 0	4 0 0	8 0 0
		Tetbury, Gloster			
		Tewkesbury			
200	10	Thame	10 0 0	5 0 0	10 0 0
230	10	Thetford	10 0 0	6 0 0	10 10 0
		Thirsk			
		Thornbury			
		Thorne			
111	10	Tiverton	10 0 0	10 0 0	17 to 18
1141	5	Todmorden	5 0 0	5 0 0	6 0 0
600	2½	Topsham	2 10 0		3 0 0
		Torquay			
		Torrington, Devon			
		Totnes			
		Totnes Consumers			
4000	5	Tottenham	3 15 0	8 0 0	4 0 0
		Towcester			
		Town-Malling			
200	10	Tring	10 0 0	5 0 0	10 0 0
		Trowbridge (see			
75	50	Truro ... [Brit. P.	50 0 0	5 0 0	
		Tunbridge			
		Tunbridge Wells			
		Ulverston			
		Uppingham			
210	5	Upton-on-Severn	5 0 0	5 0 0	5 0 0
		Usk			
		Uttoxeter			
		Uxbridge			
		Ventnor			
1000	25	*Wakefield*, old capl	25 0 0	8 0 0	35 0 0
1600	5	„ new „	5 0 0	8 0 0	7 0 0
		Wallasey			
300	10	Wallingford	10 0 0	5 0 0	8 0 0
994	10	Wandsworth	10 0 0	5 0 0	11 0 0
200	10	Wantage	9 0 0	5 0 0	10 10 0
		Warrington £23304		10 0 0	
100	10	Wareham	10 0 0	3 10 0	8 0 0
		Warkworth			
120	25	Warminster	25 0 0	5 0 0	27 0 0
		Warth			
		Warwick £15,000		6 0 0	
		Watford			
111	25	Welchpool, Mntgy.	25 0 0	5 0 0	25 0 0
		Wellingborough			
100	24	Wellington, Salop	24 0 0	7 10 0	24 0 0
		Wellington, Somers			
160	25	*Wells, Smrst.* £5000	25 0 0	10 0 0	32 to 34
		Westbury			
		Weston-sup.-Mare			
2600	5	West Ham	5 0 0	5 0 0	5 0 0
		Wetherby			
		Whitby			
		Whitehaven			
		Whitstable			
250	10	Whittlesea	10 0 0	5 0 0	11 0 0
1216	10	*Wigan*	10 0 0	10 0 0	22 0 0
		Willenhall			
		Wilton			
141	10	Winslow	10 0 0	5 0 0	10 0 0
240	10	Wimborne Minster	10 0 0		
600	10	Wimbledon	8 0 0		8 0 0
		Wincanton			
380	50	Winchester	50 0 0	5 0 0	50 0 0
900	12½	Windsor	12 10 0	10 0 0	23 0 0
		Witham			
		Witney			
4480	10	*Wolverhampton*	10 0 0	9 0 0	20 0 0
4480	10	do. new shares do. deb. £10,000	1 5 0	9 0 0	4 5 0
200	10	Woburn	10 0 0	5 0 0	10 0 0
210	10	Wokingham	10 0 0	4 0 0	10 0 0
12	500	Woodbridge	500 0 0	5 0 0	
600	2½	Woodstock	2 10 0		2 15 0
1		Wooler			
		Wotton-un.-Edge			
2930	10	*Worcester*	10 0 0	8 0 0	14 5 0
		Workington			
		Worksop & Radford			
200	10	Wirksworth	10 0 0	5 0 0	10 0 0
		Worthing			
		Wrexham			
1800	10	Woolwich Equitbl.	10 0 0	5 0 0	10 2 6
		Woolwich Consms.			
		Woolwich (North)			
		Wymondham			
795	20	Yarmouth	20 0 0	5 0 0	17 to 18
		Yeadon, near Leeds			
140	30	Yeovil	30 0 0	5 0 0	30 0 0
		York Untd. £55,000		6 0 0	

SCOTLAND.

Number of Shares issued.	Amount per Share	Name of Company.	Amount paid up per Share	Dividend per Cent. per Ann.	Price.
	£		£ s. d	£ s. d	£ s. d
13,000	5	Aberdeen	3 11 0	6 0 0	4 11 6
420	10	Airdrie	10 0 0	7 10 0	12 10 0
		Alloa			
		Annan			
1300	1	Anstruther	1 0 0	7 10 0	1 2 0
100	20	Ardrossan	20 0 0	4 0 0	20 0 0
550	20	Arbroath	20 0 0	7 10 0	30 0 0
381	5	Auchterarder	5 0 0	7 10 0	7 0 0
750	2	Auchtermuchty	2 0 0	6 0 0	2 10 0
2666	5	Ayr, old	5 0 0	6 0 0	6 0 0
2500	2	Ditto, new	2 0 0	6 0 0	2 0 0
250	10	Banff	10 0 0	9 10 0	10 12 6
		Barrhead			
		Bathgate			
		Beith			
1000	1	Bervie	1 0 0		1 0 0
		Biggar			
739	5	Blairgowrie	5 0 0	8 0 0	7 0 0
400	6	Borrowstowness	6 0 0	5 0 0	8 0 0
540	5	Brechin	5 0 0	8 10 0	9 0 0
		Bridge of Allan			
2250	2	Broughty Ferry	2 0 0	5 0 0	2 0 0
		Burntisland			
		Campbelton			
		Clackmannan			
1333	3	Coatbridge	3 0 0	10 0 0	4 0 0
		Coldstream			
		Collinsburgh			

Number of Shares issued.	Amount per Share £	Name of Company.	Amount paid up per Share £ s. d	Dividend per Cent. per Ann. £ s. d	Price. £ s. d
		Comrie			
2744	1	Crieff	1 0 0		1 0 0
		Crail, Fife			
650	1	Cullen	1 0 0	5 0 0	15 0
		Cumbernauld			
200	6	Cumnock	6 0 0	5 0 0	6 0 0
600	5	Cupar Angus	5 0 0	7 0 0	7 3 0
250	10	Cupar Fife	10 0 0	7 10 0	15 0 0
		Dalkeith			
750	2	Denny			
		Dingwall			
		Dornoch			
500	1	Douglas	1 0 0	6 0 0	1 1 0
		Dufftown			
		Dumbarton			
400	20	Dumfries	14 0 0	5 0 0	20 0 0
		Dunbar			
560	2½	Dunblane	2 10 0	4 0 0	2 10 0
	23⅓	*Dundee*, old £29,687	33 15 0	8 8 0	30 10 0
8000	5	*Dundee, new*	5 0 0	4 6 0	4 17 6
860	10	Dunfermline	10 0 0	7 10 0	15 0 0
		Dunkeld			
1000	2	Dunoon	2 0 0		2 0 0
		Dunse			
250	5	Dysart	5 0 0	7 10 0	6 0 0
6000	25	*Edinburgh Gas Co.*	25 0 0	10 0 0	56½ to 57
5480	25	„ *and Leith Co.*	18 0 0	7 10 0	27 13 6
		Elie			
455	11½	Elgin	11 10 0	6 0 0	11 10 0
		Falkirk, old			
		„ new			
		Falkland			
		Ferry Port on Craig			
600	1	Fochabers	1 0 0		1 0 0
1440	5	Forfar	5 0 0	7 10 0	7 15 0
		Fort William			
2000	16s.	Fraserburgh	16 0	5 0 0	16 0
500	5	Galashiels	5 0 0	10 0 0	9 10 0
		Garlieston			
		Gatehouse n. Fleet			
900	2½	Girvan	2 10 0	6 0 0	2 10 0
6000	25	*Glasgow*	25 0 0	10 0 0	54 0 0
15000	10	*Glasg. City & Suburb.*	10 0 0	9 0 0	19 10 0
		Grangemouth			
		Grahamston			
		Haddington			
1600	5	*Hamilton*	5 0 0	10 0 0	8 3 0
440	5	Hawick	5 0 0	7 10 0	7 10 0
300	5	Helensburgh	5 0 0	7 10 0	7 10 0
1312	1	Huntly	1 0 0	7 10 0	1 1 0
250	5	Inverary	5 0 0	10 0 0	6 12 6
425	1	Inverkeithing	1 0 0	5 0 0	1 0 0
1200	10	*Invern. Gas & Water*	10 0 0	7 10 0	15 0 0
2400	5	„ new shares	1 5 0	7 10 0	2 5 0
310	10	Irvine	10 0 0	10 0 0	15 0 0
		Jedburgh			
		Johnstone (Paisley)			
		Keith			
		Kelso		10 0 0	
		Kilmarnock			
339	5	Kincardine	5 0 0	2 10 0	4 5 6
		Kinghorn			
		Kingskittlo, Fife			
		Kinross			
120	5	Kirkaldy	5 0 0	10 0 0	8 10 0
320	5	Kirkcudbright	5 0 0	5 0 0	5 0 0
1000	3	Kirkintulloch, near	3 0 0	5 0 0	3 0 0
227	5	Kirkwall [Glasg.	5 0 0	5 0 0	4 10 0
518	5	Kirriemuir	5 0 0	6 0 0	
		Lanark			
		Largo, near Leven			
280	5	Largs	5 0 0	7 10 0	7 to 8
		Lasswade, n. Edin.			
177	5	Lauder	5 0 0	5 0 0	5 0 0
		Leith			
1879	1	Leslie, Fife	1 0 0	7 10 0	1 8 0
614	1	Lesmahago	1 0 0	6 0 0	1 0 0
		Leven			
100	10	Linlithgow	10 0 0	7 10 0	15 0 0
		Linton, n. Nobleh.			
		Lochee, n. Dundee			
240	5	Lochgilphead	5 0 0	7 10 0	5 5 0
		Lochwinnock, near Paisley			
1200	1	Markinch	1 0 0	7 10 0	1 5 0
282	3	Mauchline	3 0 0	5 0 0	3 0 0
		Maxwell-town, n. Dumfries			
423	5	Maybole, Ayrshire	5 0 0	4 10 0	5 0 0
		Maryhill, n. Glasg.			
373	2	Melrose	2 0 0	7 10 0	2 0 0
718	2	Mid & East Calder	2 0 0		2 0 0
200	5	Moffat	5 0 0	5 0 0	5 0 0
400	20	Montrose	20 0 0	10 0 0	35 0 0
		Musselburgh			
618	1	Nairn	1 0 0	5 0 0	1 0 0
		Neilston, n. Glasg.			
1056	1	Newmills, near Kilmarnock	1 0 0	5 0 0	1 0 0
		Newburgh, Fife			
		Newton-on-Ayre			
107	14½	Newton Stewart	14 10 0	5 0 0	14 10 0
		North Berwick, n. Haddington			
		North Queensferry			
245	5	Oban	5 0 0	7 10 0	5 0 0
194	5	Peebles	5 0 0	5 0 0	5 0 0
800	25	Perth	25 0 0	4 16 0	22 10 0
	5	„ new	5 0 0	2 10 0	4 2 6
		Peterhead			
		Pittenweem			
2416	1	Pollokshaws, n Glsg	1 0 0	7 10 0	1 5 0
		Port Glasgow			
		Portobello, n. Edin.			
200	5	Prestonpans	5 0 0	6 0 0	5 0 0
1500	1½	Rutherglen, nGlasg	1 6 8	5 0 0	1 6 8
		Renfrew, n. Paisley			
		Saltcoats			
951	1	Sanquhar	1 0 0	5 0 0	1 0 0
		Selkirk			
		South Queensferry			
448	12	St. Andrew's	12 0 0	6 0 0	14 0 0
200	8	Stewarton	8 0 0	5 0 0	8 0 0
7430	2	Stirling	2 0 0	8 0 0	2 12 0
2500	1	Stonehaven	1 0 0	6 5 0	1 6 0
		Stonhouse, Lanrks.			
600	2½	Stornoway	2 10 0		2 15 0
420	5	Stranraer	5 0 0	7 10 0	5 to 5½
601	2	Strathaven, near	2 0 0	8 0 0	2 15 0
643	2½	Thurso [Hamltn	2 10 0	4 0 0	2 10 0
		Tillicoultry, n. Alloa			
800	1	Tranent	1 0 0	5 0 0	1 0 0
		Troon			
		Wick			
		Wigton [haven			
		Wemyss and Buck-	4 10 0		

IRELAND.

300	10	Armagh	10 0 0	10 0 0	20 0 0
		Ballinasloe			
700	80	*Belfast*	80 0 0	4 0 0	80 0 0
51	5	Ballymena	5 0 0	10 0 0	
		Ballymoney			
150	5	Ballynahinch	5 0 0		5 0 0
		Carrickfergus			
1100	5	Carlow	5 0 0		4 10 0
400	5	Cavan	5 0 0		5 0 0
		Cork (see Un. Gen.)			
		Cookstown			
1300	5	Clonmel Consumrs	5 0 0	5 0 0	5 0 0
		Drogheda			
19,000	10	*Dublin Consumers*	6 0 0	7 0 0	8 10 0
		Dublin Hibernian (see United Gen.)			
160	25	Dundalk	25 0 0	5 0 0	25 0 0
200	10	Dungannon	10 0 0	7 10 0	12 10 0
871	5	*Downpatrick*	5 0 0	4 0 0	5 0 0
		Enniskillen			
		Enniscorthy			
240	25	Galway	25 0 0	10 0 0	37 10 0
		Keady			
460	10	Kilkenny	10 0 0	8 0 0	11 5 0
		Killarney			
		Larne			
		Limerick (see U. G.)			
1725	5	Limerick Consum.	5 0 0	5 0 0	5 0 0
		Lismore			
600	15	Londonderry	15 0 0	6 13 4	21 10 0
		Louth			
500	7	Lisburn	7 0 0	7 10 0	8 5 0
520	10	Lurgan	6 0 0	6 0 0	6 0 0
		Mallow			
		Monaghan			
		Nenagh			
448	5	Newtownards	5 0 0	6 0 0	6 15 0
		Newtownlimavady			
750	20	Newry	20 0 0	5 0 0	20 0 0
425	5	Omagh	5 0 0		5 0 0
125	20	Portadown	20 0 0	5 0 0	20 0 0
		Portaferry			
600	10	Sligo	10 0 0	2 10 0	7 0 0
		Tralee			
		Waterford			

The Gas Works in the undermentioned towns belong to private individuals:—

Abergavenny.	Chester (new).	Gainsborough.	Huntingdon.	Newport I. W. (new).	Sheerness.	Ware. (2 works)
Barnet.	Crewkerne.	Goole.	Hyde (Cheshire)	Oswestry.	Sidmouth.	Wem.
Beccles.	Dartmouth.	Harleston.	Kingston-on-Thames.	Peterborough.	Sittingbourne.	Wexford.
Bridgenorth.	Eltham.	Hatfield.	Lynn.	Pontypool.	Spalding.	Weymouth.
Brompton & Gillingham	Ely.	Hertford.	New Ross.	Sandwich.	Tipperary.	Whitchurch (Salop).
Bungay.	Farsley.	Holt.	Northfleet.	Seaham Harbour.	Waltham Abbey.	Wisbeach.
Carnarvon.	Fermoy.	Hunmanby.				

The Gas Works belong to the Corporations, or to Commissioners acting under special acts of Parliament, in the following towns:—

Carlisle.	Greenock.	Lytham (Lanc.)	Paisley.	Richmond (Yorkshire).	Stockport	Walsall.
Cashel.	Haverfordwest.	Manchester.	Rochdale.	Salford.	Strabane.	Wells (Norfolk).
Coleraine.	Keighly.	Milton (Kent).	Rothesay.	Southport (Lanc.)	Teignmouth.	Youghall.
Doncaster.	Knaresborough.	Oldham.				

Price Current.

CASTINGS, per Ton.

Average Weight of Cast Iron Gas Pipes, per Yard.

1¼ in.	2 in.	2½ in.	3 in.	4 in.	5 in.	6 in.	7 in.	8 in.	9 in.	10 in.	12 in.
16	21	28	33	51	70	89	107	126	149	177	208 lbs.

Retail Prices are 5 to 10 per cent. higher.	London. £ s. d.	Glasgow £ s. d.	Newcastle. £ s. d.	Wales. £ s. d.	Yorksh., Derbysh., and Staffrdsh. £ s. d.
Pig Iron, No. 1	5 5 0	4 2 6	4 10 0	4 15 0	5 0 0
1¼ and 2 inches Socket Pipes	9 2 6	8 5 0	8 5 0	8 10 0	8 10 0
2½ and 3 do. do.	8 17 6	8 0 0	8 0 0	8 5 0	8 5 0
4 and 5 do. do.	8 12 6	7 15 0	7 15 0	8 0 0	8 0 0
6 inches and upwards do.	8 7 6	7 10 0	7 10 0	7 15 0	7 15 0
Extra for bends, branches, and connection	2 10 0	2 10 0	2 10 0	2 10 0	2 10 0
Retorts, 2nd fusion, hot blast	8 5 0	7 7 6	7 7 6	7 12 6	7 12 6
Do. 2nd fusion, cold blast	8 15 0	..	7 17 6	8 2 6	8 2 6
Tank Plates, ⅝ thick and above	8 10 0	7 12 6	7 12 6	7 17 6	7 17 6
Do. less than ⅝	9 0 0	8 0 0	8 0 0	8 5 0	8 5 0
Plain Castings ex. models	8 15 0	7 17 6	7 17 6	8 2 6	8 2 6

COALS.

NEWCASTLE.	s.	d.	
Unscreened	6	6	per ton.
Whitwell Primrose			„
Dean's Primrose	7	0	„
Pelton			„
Brancepeth			„
Medomsley			„
Pelaw	7	3	„
Burnhope			
Eighton Moor			
Felling Main			
New Pelton			
Peareth	7	6	„
South Pelaw			
Waldridge			
Washington Hutton			
South Peareth			
Ramsay's Cannel	15	0	„
Cowen's Cannel	15	0	„

DERBYSHIRE.			
Clay Cross, Deep Main, and New Birchwood	8s. 6d. per ton.		
SCOTCH CANNEL.			
Boghead at Leith	23	0	„
Kirkness best	23	0	„
Capeldrae, first quality	20	0	„
Ditto, second quality	10	0	„
Lothian	16	0	„
Lesmahago at Glasgow	16	0	„
Ditto at Leith	17	6	„
Arniston	16	0	„
Wemyss	14	0	„
Donibristle	10	6	„
Bridgeness	11	0	„
Kinneil			„
Knightswood	10	0	„
Lochgelly	9	6	„
Lumphinan			„

FIRE GOODS.

Best Bricks, 50s. per 1000, at Newcastle.
Do. Clay, 12s. per ton do.

LEAD.

Soft pig, £23 to £24 per ton.

WROUGHT IRON TUBING, subject to 25 per cent. Discount.

	2 inches. s. d.	1½ inch. s. d.	1¼ inch. s. d.	1 inch. s. d.	¾ inch. s. d.	½ inch. s. d.
Patent welded tubes, from 2 to 12 feet, per foot	1 8	1 0	0 10	0 7	0 5	0 4¼
Ditto „ 6 in. to 18 in., each	3 0	2 0	1 9	1 3	1 0	0 9
Connecting pieces, or long screws	3 6	2 3	2 0	1 6	1 2	0 11
Bends, springs, and elbows, wrought iron	3 9	2 3	1 9	1 0	0 10	0 8
Tees, wrought or cast	4 0	2 6	2 0	1 6	1 1	0 10
Crosses, wrought or cast	4 6	3 0	2 6	2 0	1 6	1 2
Iron cocks	17 6	9 6	7	4 6	3 3	2 6
Ditto, with brass plug	28 0	16 0	13 0	7 0	5 6	4 6
Diminishing sockets, caps, plugs, and nipples	1 3	0 9	0 8	0 6	0 5	0 4
Plain sockets	1 0	0 8	0 7	0 5	0 4	0 3
Flanches	1 9	1 6	1 3	1 0	0 9	
Syphons, 2 quart	15 0	14 0	13 6	13 0	12 0	
Ditto 1 quart	11 6	10 6	10 3	10 0	9 6	

FREIGHTS, per Ton.

Coastwise—Newcastle.			
Chatham & Roches.	11s.	0d	
Cork	17	0	
Dover	17	0	
Dublin	18	0	
Exeter Quay	17	0	
Folkestone	14	0	
Hastings	15	0	
Ipswich	10	6	
Jersey	13	0	
London	10	6	
Lowestoft	8	6	
Lynn	10	0	
Margate	12	6	
Portsmouth	15	0	
Plymouth	16	0	
Southampton	14	0	
Whitstable	12	0	
Weymouth	15s.	0d	
Yarmouth	8	6	
Foreign.			
Boulogne	12	6	
Barcelona	25	0	
Bordeaux	17	6	
Calais	12	6	
Dieppe	15	0	
Hamburg	16	0	
Havanna	33	0	
Havre	15	6	
Leghorn	26	0	
Lisbon	23	0	
Rotterdam	15	0	
Rouen	18	6	
St. Petersburgh	15	6	
Stettin	30	1	
Trieste and Venice			

(*Continued from page* 313.)

pipe. The holder then rose bodily and perpendicularly, and, after it had so much risen that the water had not sufficient pressure to return the force of the explosion, the fire came out from under the two sides of the holder, and flashed up. The holder seemed to rend asunder, and both the deceased men fell through it into the water in the tank, with their arms extended. Culyer was on the left of the pipe. I heard no noise, as the points of the explosion were from me. The explosion might have been heard at Sheerness. At the time of the explosion I felt a wavy motion of the earth, as it lifted up. The holder fell over the deceased men. Culyer was an experienced gas engineer.

By the Jury: If more water had been in the tank the accident would not have been prevented. I heard Culyer struggling in the water after I had called for assistance. I received no answer from him. His body was recovered in a few minutss after, but he was then quite dead. Deceased was thirty-six years of age.

By the Coroner: There were about 3000 feet of gas in the holder at the time of the accident.

Henry Beaumont said, he was at the retort-house on Friday night. On hearing the explosion he ran out, and heard the last witness exclaim, "They are both killed." Heard Culyer groan two or three times, and, on going to the spot whence the sound proceeded, there saw Culyer, whom witness assisted in taking out of the water. He was then quite dead.

The Coroner said, the questions the jury would have to determine were—Was the death of the deceased accidental? and, if so, was it caused by drowning, or from the want of a sufficient quantity of oxygen gas?

The Jury then returned a verdict—"That the deceased were accidentally killed by an explosion at the gas works; but whether drowned or suffocated by the gas there was not sufficient evidence to show."

The deceased was one of the candidates for the vacant situation of manager of the Plymouth and Stonehouse Gas Works, advertised in last month's JOURNAL. He leaves a wife and three children, who, in consequence of his having neglected to pay the last premium, are, unfortunately, deprived of the benefit of an insurance of £500, which he had effected on his life.

Advertisements.

CLEGG ON COAL GAS.

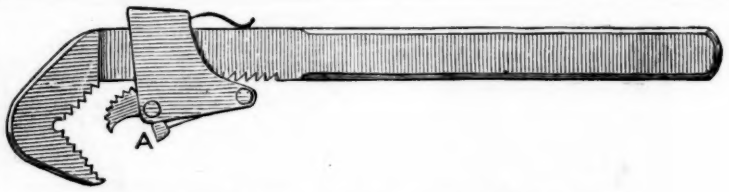
Now ready, in demy 4to., with numerous Engravings and Woodcuts, price £1. 11s. 6d., bound in cloth, the Second Edition, considerably enlarged, of

A PRACTICAL TREATISE
ON THE
MANUFACTURE AND DISTRIBUTION OF COAL GAS;
ITS INTRODUCTION AND PROGRESSIVE DEVELOPMENT.

Illustrated by Engravings from Working Drawings, with General Estimates.

BY SAMUEL CLEGG, JUN., M. INST. C.E., F.G.S.

LONDON: JOHN WEALE, 59, HIGH HOLBORN.



WORMALD AND POLLARD'S
PATENT UNIVERSAL PIPE WRENCH.

This Patented WRENCH answers the purpose of every description of Gas Tongs and Nut or Stud Wrench now in use, for it can be adjusted at pleasure to take and retake, without slipping, Gas and Water Piping from ¼ to 2-inch bore, and the various Nuts employed in Engines. The Wrench weighs only 5 lb., and possesses great strength and durability.

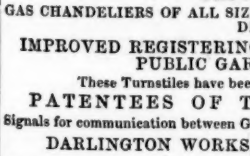
DIRECTIONS FOR USE:—Press on tongue at A, move sliding part up to pipe, then let go tongue, and it will be in operation.

PRICE OF WRENCH, 25s.

MESSRS. WALCOTT AND RIDSDALE, SOLE AGENTS.

Apply to Mr. WALCOTT, at Provincial and Continental Consumers' Gas Company's Offices, 64, MARK-LANE.

STEVENS AND SON,
ENGINEERS,
IRON AND BRASS FOUNDERS AND MANUFACTURERS;
CONTRACTORS
FOR THE
ERECTION OR ALTERATION OF GAS WORKS, FROM TWENTY LIGHTS UPWARDS,



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GASHOLDER MAKERS,

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Contracts for Tanks, Gasholders, Roofs, Purifiers, and all descriptions of Gas Apparatus executed on the most reasonable terms. Improved Slide Valves, Steam and Range Boilers, and Smiths' Work, of the best materials and workmanship.

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Fire goods of every description made to order.

H. JONES, Gas Meter Manufacturer, No. 44, OLD-STREET, St. Luke's, London, begs respectfully to call the attention of Gas Companies to his latest improvements in the WET METER, by means of which water cannot be abstracted, neither can Gas by any possibility pass through the Meter without registering.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

GAS Cooking Apparatus, Gas Baths, GAS STOVES for heating Apartments, Halls, Conservatories, &c.

The above are manufactured by HALDANE and RAE, 2, George-street, and 5, Old Physic-gardens, EDINBURGH.

Apply in London to Mr. FORREST, Brassfounder, &c., 3, Neville's-court, New-street-square, LONDON.

JOSEPH BOULTON, Gas Meter Manufacturer, No. 1, COPPICE-ROW, CLERKENWELL, LONDON, begs to call the attention of Gas Companies and the public in general to his improved GAS METER, containing all the latest improvements.

J. B. warrants all Meters to be manufactured of the best materials and workmanship, the wheels, &c., being of metal. Old Meters repaired on the lowest terms.

WROUGHT-IRON GAS AND OTHER TUBES.

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WOLVERHAMPTON TUBE WORKS.

C. WHITEHOUSE, the ORIGINAL INVENTOR and Patentee of the Wrought-Iron Gas Tube in 1824, having unremittingly given his attention to the most perfect means of making this article (now so much required) for a period of nearly thirty years, begs with the utmost confidence to call the attention of Gas Engineers, and Consumers of Tubes, to the excellent quality now made at the above-named Works.

Specimens of Tubes, of any diameter, sent carriage free to any part of the Kingdom; and orders of any magnitude executed promptly, the stock on hand averaging generally from ONE to THREE HUNDRED THOUSAND FEET, with a corresponding quantity of Fittings.

Tubular Flues, for marine and locomotive Boilers, made on the most approved method, and of the best Charcoal Iron; also, Casings for Well Sinkers and Borers in search of minerals, with male and female joints, and a perfectly smooth and regular interior. Core Bars for Ironfounders, and Brass Gas Fittings of any kind for Plumbers or Gas Fitters.

Observe—Every article is most carefully tested by hydraulic pressure before passing to the warehouse.

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PATENTEES AND MANUFACTURERS,
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The Bank of England is fitted entirely with these Valves, from the smallest branch to the largest main pipe.

The following, among numerous testimonials, will be found very satisfactory:—

"The British Gaslight Company's Office, No. 105, Broad-street, Ratcliff, London, June 10, 1846.

"Gentlemen,—In reply to your inquiry, I have to state that 'Carter's Patent Gas Valve' has been used by this company and by the fitters of the district extensively for seven years past. It was adopted to obviate the inconvenience of setting fast, so prevalent with the conical metal plug-cocks, and has been found to answer the purpose intended.

"I have recommended its use in several provincial towns with which I am professionally connected, and have not received any complaint of its having failed in any respect of performing satisfactorily all that is required of it.—I am, gentlemen, yours respectfully,

"GEDDIE PEARSE.

"Messrs. Lambert and Son, Lambeth."

TO GAS COMPANIES, GAS PROPRIETORS, AND GAS ENGINEERS.

JOHN VICKARY

begs to call the attention of the above to his improved METALLIC CASE GAS-METER, an improvement which has met with entire approbation from the various Gas Companies and Engineers to whom he has introduced it, and acknowledged to be the greatest improvement that has been made since the year 1833; at which period a metal was introduced for the construction of the Drum, Syphon, and Float, capable of resisting any impurities arising from either gas or water, which has been found to answer every expectation; as, in repair, Drums of the above date are found in perfect and good condition, when the Outer Case, Valve-box, Inlet-pipe, &c., are quite destroyed and entirely past repair.

J. V. has introduced a coating or lining of the above metal in the Outer Case, Valve-box, Inlet-pipe, &c., thereby rendering the whole as durable as the Drum, as not a particle of tin plate is exposed to the action of either water or gas; and preventing the possibility of gas passing above the water line through the front into the body of the Case to the outlet unregistered, which frequently occurs. When the Meter has been in use for any length of time it is generally found that rust or decay takes place *above* rather than under the water line, which is only discovered when they need repair. Also the Inlet-pipe and Valve-box are generally found quite decayed, which cannot happen in the above improvement.

J. V. feels confident that the above will be found a most desirable and perfect instrument, as it contains all other improvements of utility that have been introduced up to the present time.

The most strict attention is given to the workmanship as well as the registration of every Meter, to render them perfectly accurate.

Station Meters, Governors, &c., made on the shortest notice, as well as Gas Cooking Apparatus of every description, Gas Baths, &c.

Meters sent at the lowest London prices.

Carriage paid to any part of England.

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PATENT DRY GAS METERS

Are supplied to Gas Companies and the Public as the best and simplest Dry Gas Meters in use. They are acknowledged to be of first-rate workmanship and accuracy of registration.—Shears and Sons continue to supply these Meters on the most favourable terms; and they also manufacture Wet Gas Meters, to which they apply their Patent Indices.

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